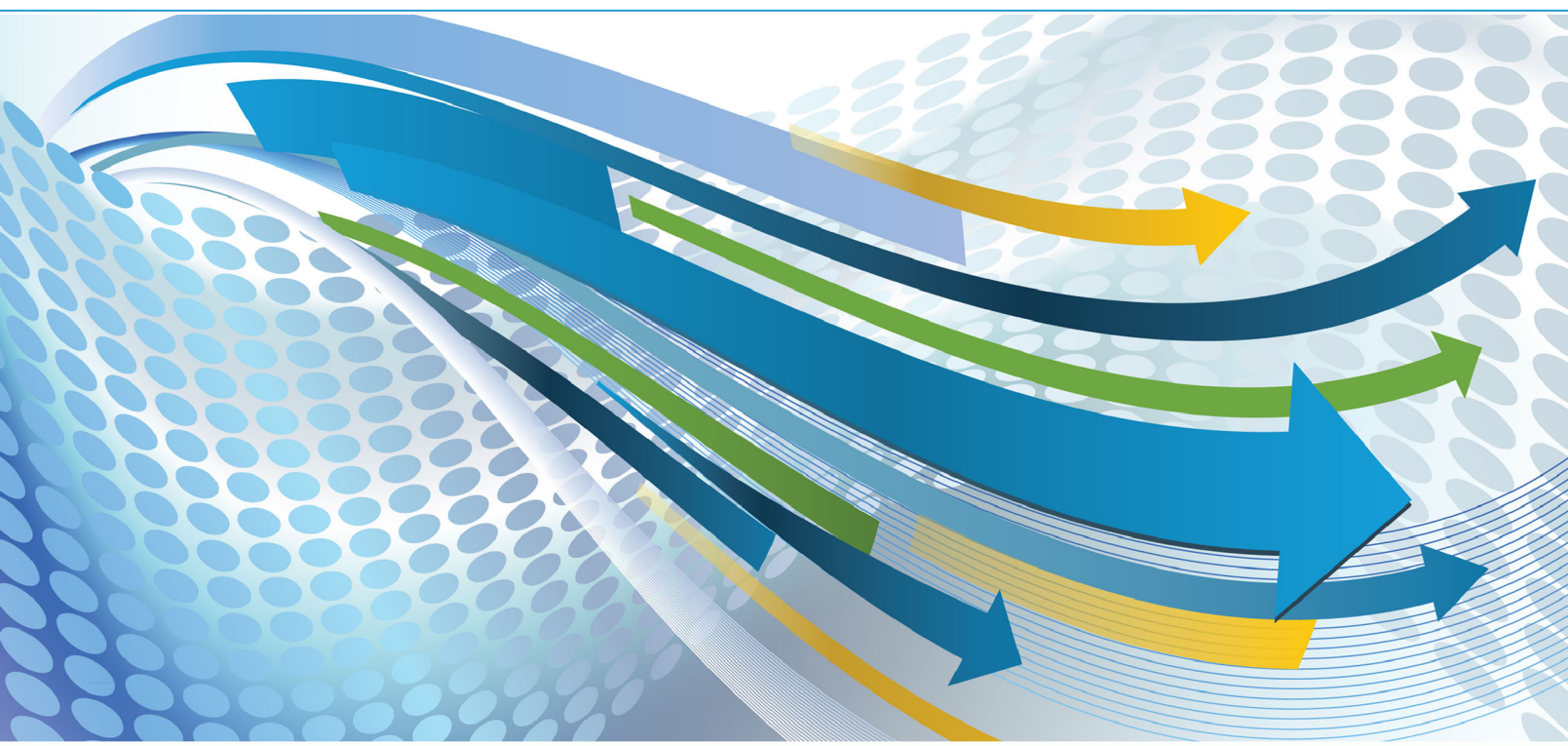


# September 2020

# Monthly Energy Review



*Independent Statistics & Analysis*

U.S. Energy Information  
Administration

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

# Monthly Energy Review

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The *Monthly Energy Review* (MER) is the U.S. Energy Information Administration's (EIA) primary report of recent and historical energy statistics. Included are statistics on total energy production, consumption, stocks, trade, and energy prices; overviews of petroleum, natural gas, coal, electricity, nuclear energy, and renewable energy; 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 MER content 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 files, comma-separated values (CSV) files, application programming interface (API) files, and in the data browser. Also, only two to three years of monthly data are displayed in the PDF files; however, for many series, monthly data beginning with January 1973 are available in the Excel files, CSV files, API files, and in the data browser.

**Comprehensive changes:** Each month, most MER tables and figures present data for a new month. These data are usually preliminary (and sometimes estimated or forecasted) and likely to be revised the following month. The first dissemination of most annual data is also preliminary. It is often based on monthly estimates and is likely to be revised later that year after final data are published from sources, according to source data revision policies and publication schedules. In addition, EIA may revise historical data when a major revision in a source publication is needed, when new data sources become available, or when estimation methodologies are improved. A record of current and historical changes to MER data is available at <https://www.eia.gov/totalenergy/data/monthly/whatsnew.php>.

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## Electronic access

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- Full report and report tables: PDF files
- Table data (unrounded): Excel files, CSV files, API files, and data browser
- Graphs: PDF files and data browser

Note: PDF files display selected annual and monthly data; Excel files, CSV files, API files, and data browser display all available annual and monthly data, often with greater precision than the PDF files.

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

**Released:** September 24, 2020

# **Monthly Energy Review**

## **September 2020**

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

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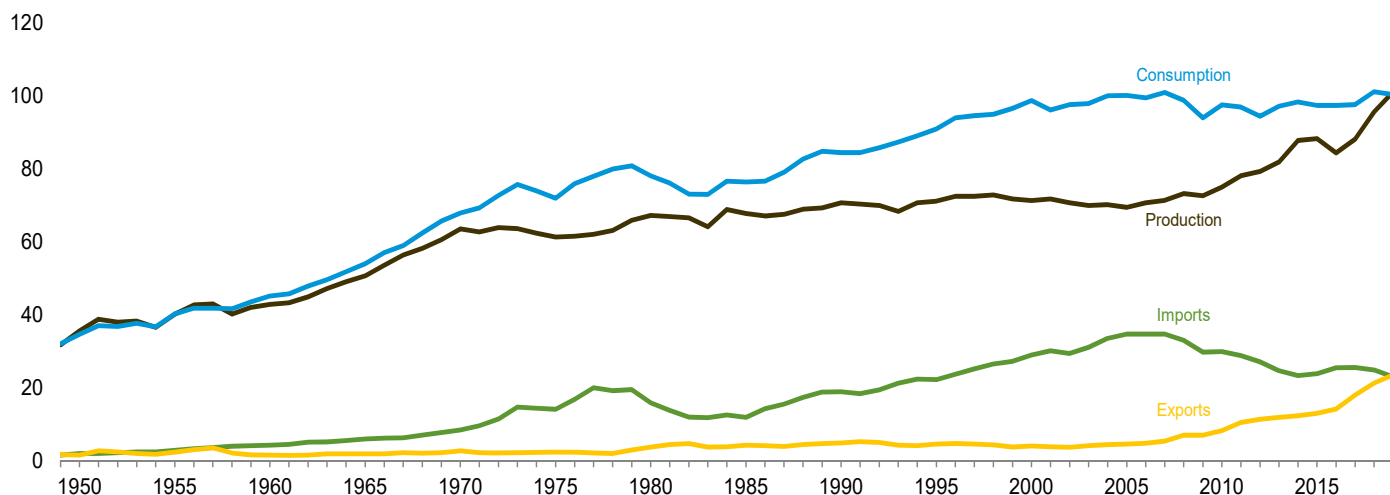
# 1. Energy Overview

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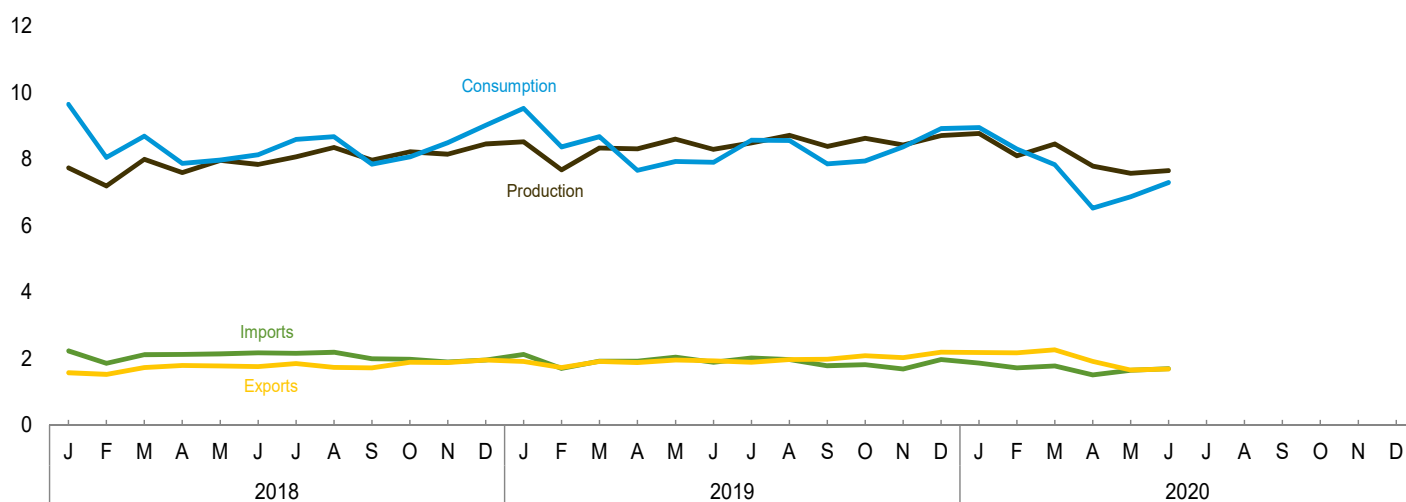
**Figure 1.1 Primary Energy Overview**

(Quadrillion Btu)

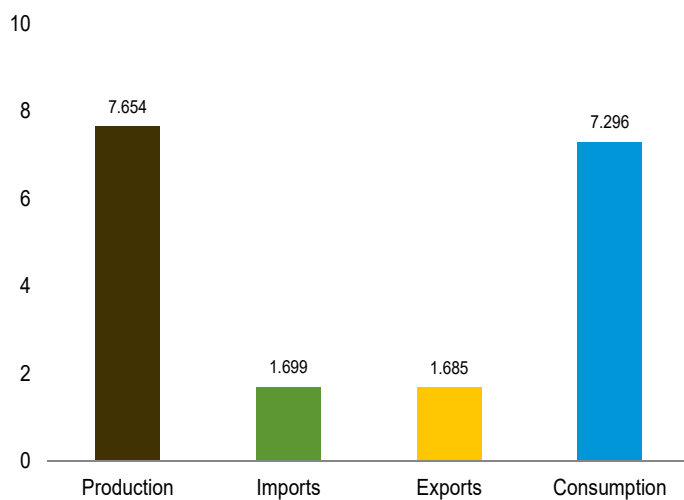
Overview, 1949–2019



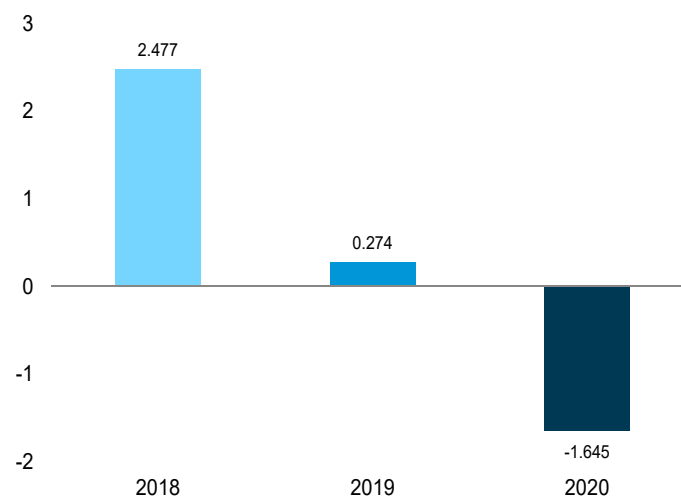
Overview, Monthly



Overview, June 2020



Net Imports, January–June



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	32.553	0.000	2.978	35.531	1.913	1.465	0.448	-1.380	31.615	0.000	2.978	34.599
1955 Total	37.347	.000	2.784	40.131	2.790	2.286	.504	-.457	37.380	.000	2.784	40.178
1960 Total	39.855	.006	2.928	42.789	4.188	1.477	2.710	-.458	42.091	.006	2.928	45.041
1965 Total	47.205	.043	3.396	50.644	5.892	1.829	4.063	-.754	50.515	.043	3.396	53.953
1970 Total	59.152	.239	4.070	63.462	8.342	2.632	5.709	-1.354	63.501	.239	4.070	67.817
1975 Total	54.697	1.900	4.687	61.284	14.032	2.323	11.709	-1.062	65.323	1.900	4.687	71.931
1980 Total	58.979	2.739	5.428	67.147	15.796	3.695	12.101	-1.227	69.782	2.739	5.428	78.021
1985 Total	57.502	4.076	6.084	67.661	11.781	4.196	7.584	1.088	66.035	4.076	6.084	76.334
1990 Total	58.523	6.104	6.040	70.668	18.817	4.752	14.065	-.299	72.281	6.104	6.040	84.433
1995 Total	57.496	7.075	6.557	71.129	22.180	4.496	17.684	2.118	77.162	7.075	6.559	90.931
2000 Total	57.307	7.862	6.102	71.271	28.865	3.962	24.904	2.528	84.620	7.862	6.104	98.702
2001 Total	58.485	8.029	5.162	71.675	30.052	3.731	26.321	-1.933	82.800	8.029	5.160	96.064
2002 Total	56.777	8.145	5.731	70.653	29.331	3.608	25.722	1.160	83.592	8.145	5.726	97.535
2003 Total	55.983	7.960	5.942	69.885	31.007	4.013	26.994	.956	83.909	7.960	5.944	97.835
2004 Total	55.884	8.223	6.063	70.169	33.492	4.351	29.141	.692	85.666	8.223	6.075	100.002
2005 Total	54.995	8.161	6.221	69.377	34.659	4.462	30.197	.527	85.623	8.161	6.234	100.102
2006 Total	55.877	8.215	6.586	70.678	34.649	4.727	29.921	-1.207	84.477	8.215	6.637	99.392
2007 Total	56.369	8.459	6.510	71.338	34.679	5.338	29.341	.215	85.805	8.459	6.523	100.893
2008 Total	57.527	8.426	7.192	73.145	32.970	6.949	26.021	-.412	83.041	8.426	7.175	98.754
2009 Total	56.612	8.355	7.625	72.592	29.690	6.920	22.770	-1.420	77.862	8.355	7.608	93.942
2010 Total	58.159	8.434	8.314	74.907	29.866	8.176	21.690	R .916	R 80.723	8.434	8.267	R 97.513
2011 Total	R 60.515	8.269	9.300	R 78.083	28.748	10.373	18.375	R .404	R 79.263	8.269	9.204	R 96.863
2012 Total	R 62.291	8.062	8.886	R 79.239	27.068	11.267	15.801	R -.666	R 77.304	8.062	8.847	R 94.374
2013 Total	R 64.177	8.244	9.418	R 81.839	24.623	11.788	12.835	R 2.443	R 79.224	8.244	9.451	R 97.117
2014 Total	R 69.616	8.338	9.767	R 87.720	23.241	12.270	10.971	R -.415	R 80.017	8.338	9.740	R 98.276
2015 Total	R 70.201	8.337	9.729	R 88.267	23.794	12.902	10.892	R -1.783	R 79.090	8.337	9.721	R 97.375
2016 Total	R 65.445	8.427	10.423	R 84.295	25.378	14.119	11.259	R 1.781	R 78.319	8.427	10.363	R 97.335
2017 Total	R 68.478	8.419	11.196	R 88.092	25.457	17.946	7.512	R 1.991	R 77.907	8.419	11.077	R 97.595
2018 January	R 5.982	.780	.972	R 7.734	2.228	1.575	.652	R 1.267	R 7.905	.780	.954	R 9.653
February	R 5.600	.677	.918	R 7.195	1.861	1.526	.335	R .522	R 6.471	.677	.892	R 8.053
March	R 6.282	.701	1.011	R 7.994	2.114	1.731	.383	R .320	R 6.985	.701	.996	R 8.697
April	R 5.963	.618	1.018	R 7.600	2.125	1.793	.332	R -.056	R 6.247	.618	1.001	R 7.876
May	R 6.210	.704	1.049	R 7.963	2.142	1.781	.361	R -.352	R 6.215	.704	1.040	R 7.972
June	R 6.087	.729	1.030	R 7.846	2.176	1.763	.413	R -.126	R 6.375	.729	1.015	R 8.133
July	R 6.368	.758	.945	R 8.070	2.161	1.854	.308	R .219	R 6.897	.758	.928	R 8.598
August	R 6.652	.756	.949	R 8.356	2.192	1.738	.453	R -.133	R 6.969	.756	.934	R 8.676
September	R 6.430	.677	.865	R 7.973	1.999	1.718	.280	R -.403	R 6.317	.677	.845	R 7.850
October	R 6.699	.621	.902	R 8.222	1.982	1.892	.090	R -.241	R 6.557	.621	.884	R 8.071
November	R 6.579	.669	.905	R 8.153	1.896	1.882	.014	R .336	R 6.937	.669	.887	R 8.502
December	R 6.763	.749	.943	R 8.455	1.958	1.955	.003	R .557	R 7.330	.749	.925	R 9.015
Total	R 75.615	8.438	11.508	R 95.562	24.833	21.208	3.625	R 1.910	R 81.205	8.438	11.301	R 101.096
2019 January	R 6.787	.771	.965	R 8.522	R 2.122	R 1.912	R .210	R .797	R 7.807	.771	.941	R 9.530
February	R 6.116	.677	.885	R 7.677	R 1.700	R 1.725	R -.025	R .715	R 6.808	.677	.872	R 8.367
March	R 6.656	.680	1.004	R 8.340	R 1.925	R 1.917	R .008	R .329	R 6.997	.680	.991	R 8.677
April	R 6.642	.633	1.040	R 8.316	R 1.925	R 1.886	R .038	R -.693	R 5.997	.633	1.023	R 7.661
May	R 6.831	.702	1.071	R 8.604	R 2.046	R 1.959	R .087	R -.758	R 6.160	.702	1.060	R 7.933
June	R 6.570	.719	1.009	R 8.299	R 1.889	R 1.933	R -.044	R -.344	R 6.182	.719	.997	R 7.911
July	R 6.744	.755	.992	R 8.491	R 2.021	R 1.891	R .129	R -.051	R 6.824	.755	.978	R 8.569
August	R 7.017	.752	.948	R 8.717	R 1.975	R 1.970	R .005	R -.161	R 6.863	.752	.932	R 8.561
September	R 6.796	.691	.897	R 8.384	R 1.789	R 1.979	R -.189	R -.333	R 6.275	.691	.884	R 7.862
October	R 7.044	.649	.933	R 8.626	R 1.816	R 2.086	R -.269	R -.408	R 6.370	.649	.924	R 7.949
November	R 6.833	.670	.924	R 8.428	R 1.688	R 2.028	R -.339	R .282	R 6.778	.670	.910	R 8.370
December	R 6.978	.764	.969	R 8.711	R 1.969	R 2.191	R -.223	R .435	R 7.197	.764	.949	R 8.924
Total	R 81.016	8.462	11.637	R 101.116	R 22.865	R 23.478	R -.612	R -.189	R 80.258	8.462	11.461	R 100.314
2020 January	7.000	.776	.997	8.772	R 1.866	R 2.181	R -.315	R .494	7.192	.776	.973	8.951
February	6.423	.690	.993	8.106	R 1.719	R 2.171	R -.451	R .652	6.635	.690	.971	8.306
March	6.798	.669	.995	8.462	R 1.779	R 2.263	R -.483	R -.140	6.193	.669	.963	7.838
April	R 6.261	.619	.919	R 7.798	R 1.507	R 1.912	R -.406	R -.861	4.992	.619	.910	R 6.532
May	5.865	.673	R 1.040	R 7.578	R 1.649	1.654	R -.005	R -.703	5.144	.673	1.041	6.870
June	5.892	.703	1.059	7.654	1.699	1.685	.015	-.372	5.527	.703	1.053	7.296
6-Month Total	38.239	4.128	6.002	48.369	10.220	11.865	-1.645	-.931	35.683	4.128	5.912	45.793
2019 6-Month Total	39.603	4.182	5.973	49.759	11.607	11.333	.274	.046	39.952	4.182	5.884	50.078
2018 6-Month Total	36.124	4.209	5.999	46.332	12.646	10.169	2.477	1.575	40.198	4.209	5.897	50.384

<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.

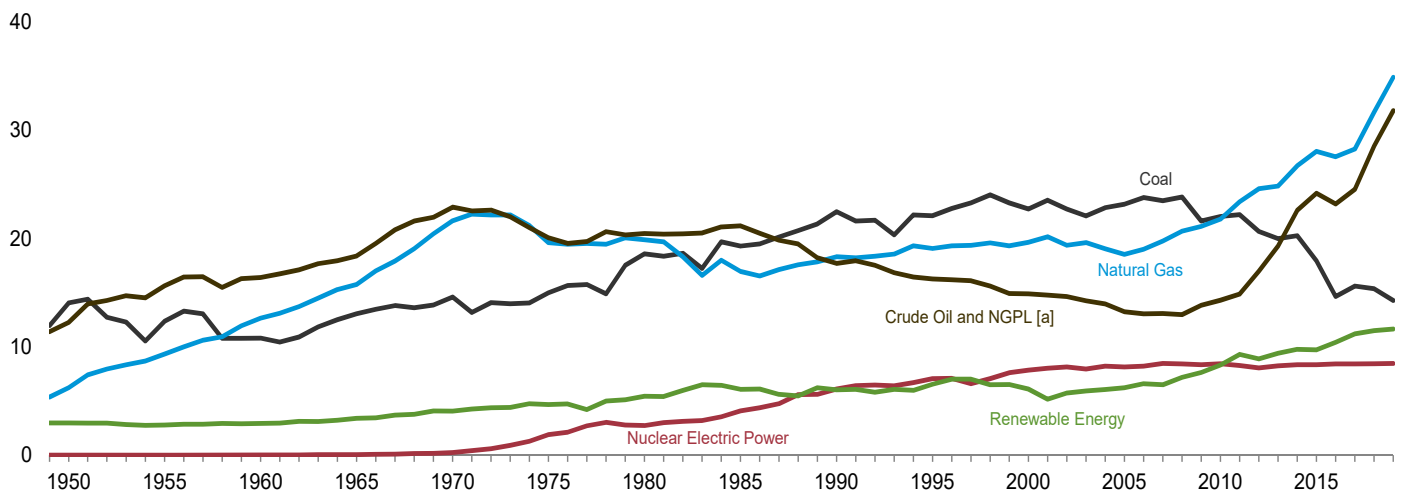
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#summary> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

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.

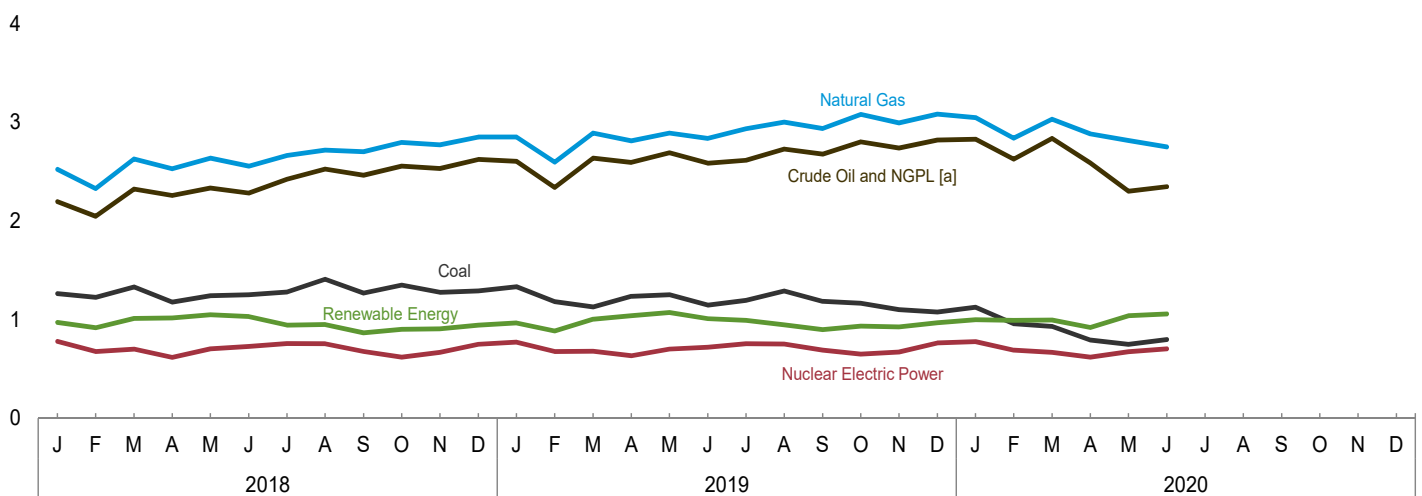
**Figure 1.2 Primary Energy Production**

(Quadrillion Btu)

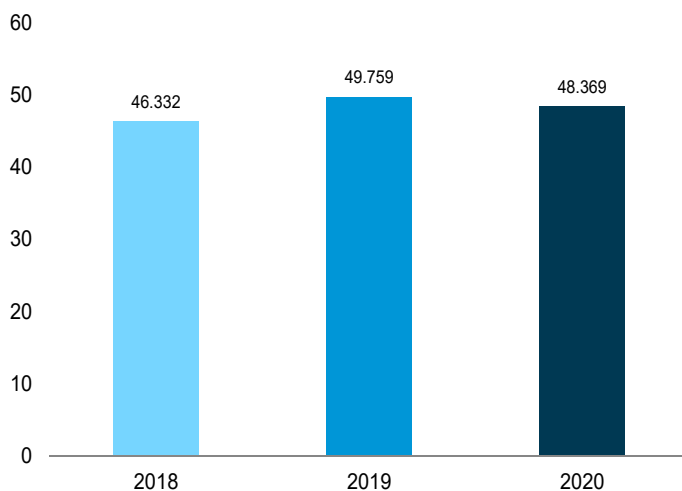
By Source, 1949–2019



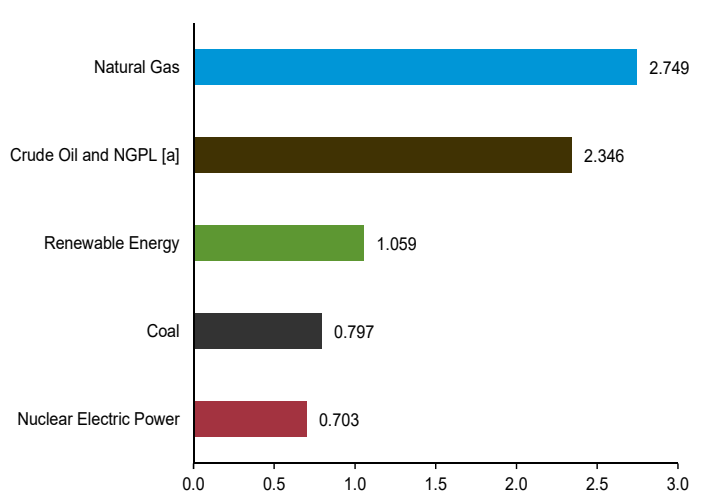
By Source, Monthly



Total, January–June



By Source, June 2020



[a] National 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	0.813	32.553	0.000	1.415	NA	NA	NA	1.562	2.978	35.531
1955 Total	12.370	9.345	14.410	1.223	37.347	.000	1.360	NA	NA	NA	1.424	2.784	40.131
1960 Total	10.817	12.656	14.935	1.447	39.855	.006	1.608	(s)	NA	NA	1.320	2.928	42.789
1965 Total	13.055	15.775	16.521	1.853	47.205	.043	2.059	.002	NA	NA	1.335	3.396	50.644
1970 Total	14.607	21.666	20.401	2.478	59.152	.239	2.634	.006	NA	NA	1.431	4.070	63.462
1975 Total	14.989	19.640	17.729	2.338	54.697	1.900	3.155	.034	NA	NA	1.499	4.687	61.284
1980 Total	18.598	19.908	18.249	2.225	58.979	2.739	2.900	.053	NA	NA	2.475	5.428	67.147
1985 Total	19.325	16.980	18.992	2.204	57.502	4.076	2.970	.097	(s)	(s)	3.016	6.084	67.661
1990 Total	22.488	18.326	15.571	2.138	58.523	6.104	3.046	.171	.059	.029	2.735	6.040	70.668
1995 Total	22.130	19.082	13.887	2.398	57.496	7.075	3.205	.152	.068	.033	3.099	6.557	71.129
2000 Total	22.735	19.662	12.358	2.551	57.307	7.862	2.811	.164	.063	.057	3.006	6.102	71.271
2001 Total	23.547	20.166	12.282	2.491	58.485	8.029	2.242	.164	.062	.070	2.624	5.162	71.675
2002 Total	22.732	19.382	12.160	2.502	56.777	8.145	2.689	.171	.060	.105	2.705	5.731	70.653
2003 Total	22.094	19.633	11.960	2.296	55.983	7.960	2.793	.173	.058	.113	2.805	5.942	69.885
2004 Total	22.852	19.074	11.550	2.408	55.884	8.223	2.688	.178	.058	.142	2.996	6.063	70.169
2005 Total	23.185	18.556	10.974	2.280	54.995	8.161	2.703	.181	.058	.178	3.101	6.221	69.377
2006 Total	23.790	19.022	10.767	2.299	55.877	8.215	2.869	.181	.061	.264	3.212	6.586	70.678
2007 Total	23.493	19.786	10.741	2.349	56.369	8.459	2.446	.186	.066	.341	3.472	6.510	71.338
2008 Total	23.851	20.703	10.613	2.359	57.527	8.426	2.511	.192	.074	.546	3.868	7.192	73.145
2009 Total	21.624	21.139	11.340	2.508	56.612	8.355	2.669	.200	.078	.721	3.957	7.625	72.592
2010 Total	22.038	21.806	11.610	2.705	58.159	8.434	2.539	.208	.091	.923	4.553	8.314	74.907
2011 Total	22.221	23.406	R 11.998	2.890	R 60.515	8.269	3.103	.212	.112	1.168	4.704	9.300	R 78.083
2012 Total	20.677	24.610	R 13.842	3.162	R 62.291	8.062	2.629	.212	.159	1.340	4.547	8.886	R 79.239
2013 Total	20.001	24.859	R 15.865	3.451	R 64.177	8.244	2.562	.214	.225	1.601	4.816	9.418	R 81.839
2014 Total	20.286	26.018	R 18.607	4.005	R 69.616	8.338	2.467	.214	.338	1.728	5.020	9.767	R 87.720
2015 Total	17.946	28.767	R 19.712	4.476	R 70.201	8.337	2.321	.212	.427	1.777	4.992	9.729	R 88.267
2016 Total	14.667	27.576	R 18.537	4.665	R 65.445	8.427	2.472	.210	.570	2.096	5.075	10.423	R 84.295
2017 Total	15.625	28.289	R 19.576	4.987	R 68.478	8.419	2.767	.210	.777	2.343	5.099	11.196	R 88.092
2018 January	1.262	2.522	R 1.769	.429	R 5.982	.780	.228	.018	.049	.233	.445	.972	R 7.734
February	1.225	2.327	R 1.639	.408	R 5.600	.677	.227	.016	.055	.211	.408	.918	R 7.195
March	1.332	2.627	R 1.855	.468	R 6.282	.701	.235	.018	.074	.241	.443	1.011	R 7.994
April	1.178	2.527	R 1.797	.462	R 5.963	.618	.256	.016	.086	.241	.420	1.018	R 7.600
May	1.241	2.635	R 1.850	.484	R 6.210	.704	.277	.018	.096	.218	.440	1.049	R 7.963
June	1.251	2.554	R 1.815	.467	R 6.087	.729	.251	.017	.102	.225	.435	1.030	R 7.846
July	1.280	2.664	R 1.929	.496	R 6.368	.758	.229	.018	.097	.150	.452	.945	R 8.070
August	1.408	2.718	R 2.014	.512	R 6.652	.756	.200	.018	.095	.181	.455	.949	R 8.356
September	1.268	2.700	R 1.962	.500	R 6.430	.677	.174	.017	.085	.169	.421	.865	R 7.973
October	1.350	2.795	R 2.044	.511	R 6.699	.621	.178	.017	.072	.193	.441	.902	R 8.222
November	1.278	2.771	R 2.038	.492	R 6.579	.669	.199	.017	.056	.200	.432	.905	R 8.153
December	1.291	2.850	R 2.123	.499	R 6.763	.749	.208	.019	.048	.221	.447	.943	R 8.455
Total	15.363	31.690	R 22.835	5.727	R 75.615	8.438	2.663	.209	.916	2.482	5.238	11.508	R 95.562
2019 January	R 1.333	E 2.849	2.096	R .509	R 6.787	.771	.220	.018	.054	.229	.443	.965	R 8.522
February	R 1.181	E 2.596	1.863	R .476	R 6.116	.677	.199	.017	.058	.209	R .403	.885	R 7.677
March	R 1.128	E 2.891	2.109	.529	R 6.656	.680	.233	.018	.086	.238	.429	1.004	R 8.340
April	R 1.237	E 2.812	2.074	.518	R 6.642	.633	.232	.016	.098	.270	.423	1.040	R 8.316
May	R 1.251	E 2.891	2.148	.541	R 6.831	.702	.274	.018	.105	.236	R .439	1.071	R 8.604
June	R 1.148	E 2.837	2.066	.519	R 6.570	.719	.241	.018	.113	.209	.429	1.009	R 8.299
July	R 1.195	E 2.934	2.088	R .526	R 6.744	.755	.216	.018	.116	.201	.442	.992	R 8.491
August	R 1.290	E 3.000	2.195	R .533	R 7.017	.752	.192	.018	.112	.181	.446	.948	R 8.717
September	R 1.184	E 2.936	2.136	.540	R 6.796	.691	.149	.018	.097	.222	.412	.897	R 8.384
October	1.165	E 3.079	2.238	.562	R 7.044	.649	.148	.017	.087	.256	.425	.933	8.626
November	1.100	E 2.994	2.198	R .540	R 6.833	.670	.187	.015	.064	.233	.425	.924	R 8.428
December	R 1.077	E 3.082	2.261	R .558	R 6.978	.764	.202	.017	.054	.247	.448	.969	R 8.711
Total	R 14.289	E 34.902	25.473	R 6.352	R 81.016	8.462	2.492	.209	1.043	2.732	5.161	11.637	R 101.116
2020 January	1.124	E 3.047	E 2.253	.575	7.000	.776	.221	.016	.066	.259	.434	.997	8.772
February	.959	E 2.839	E 2.106	.519	6.423	.690	.228	.015	.079	.266	.404	.993	8.106
March	.931	E 3.030	E 2.250	.587	6.798	.669	.203	.019	.094	.268	.411	.995	8.462
April	R .792	RE 2.882	RE 2.053	.534	R 6.261	.619	.189	.017	.114	.269	R .330	.919	R 7.798
May	R .750	E 2.815	E 1.769	.531	R 5.865	.673	.268	.018	.134	.257	R .363	R 1.040	R 7.578
June	.797	E 2.749	E 1.784	.562	5.892	.703	.261	.017	.132	.274	.375	1.059	7.654
6-Month Total	5.353	E 17.362	E 12.215	3.309	38.239	4.128	1.370	.102	.619	1.593	2.318	6.002	48.369
2019 6-Month Total	7.278	E 16.876	E 12.357	3.092	39.603	4.182	1.398	.105	.513	1.392	2.565	5.973	49.759
2018 6-Month Total	7.489	15.192	10.725	2.718	36.124	4.209	1.475	.103	.462	1.369	2.590	5.999	46.332

<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 processing plant production of natural gas liquids (ethane, propane, normal butane, isobutane, and natural gasoline). Through 1980, also includes natural gas processing plant production of finished petroleum products (aviation gasoline, distillate fuel oil, jet fuel, kerosene, motor gasoline, special

naphthas, and miscellaneous products).

<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.

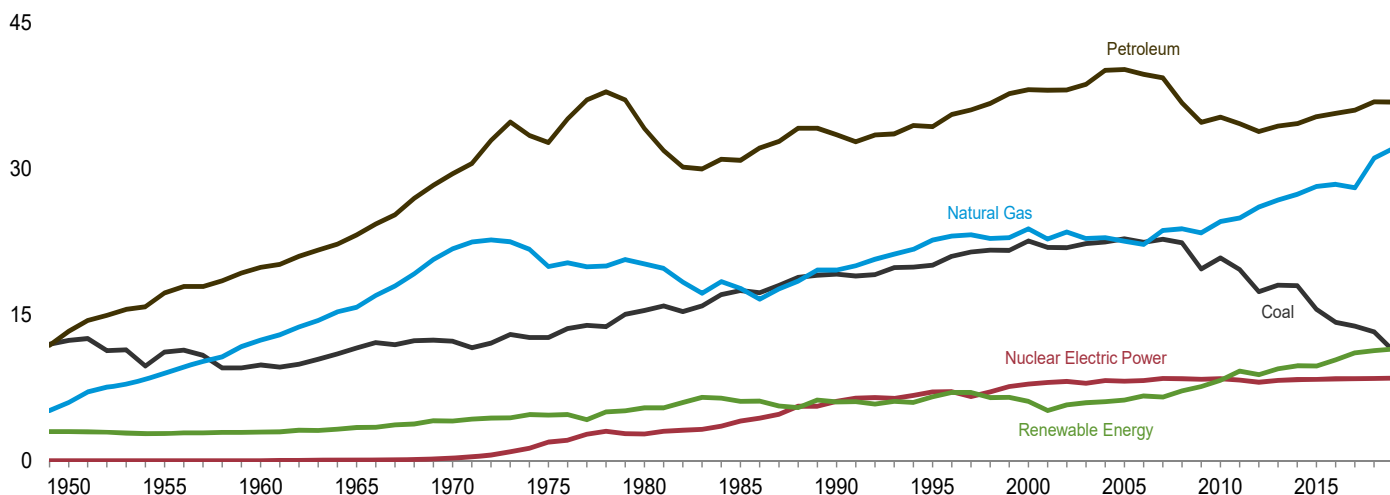
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Sources: See end of section.

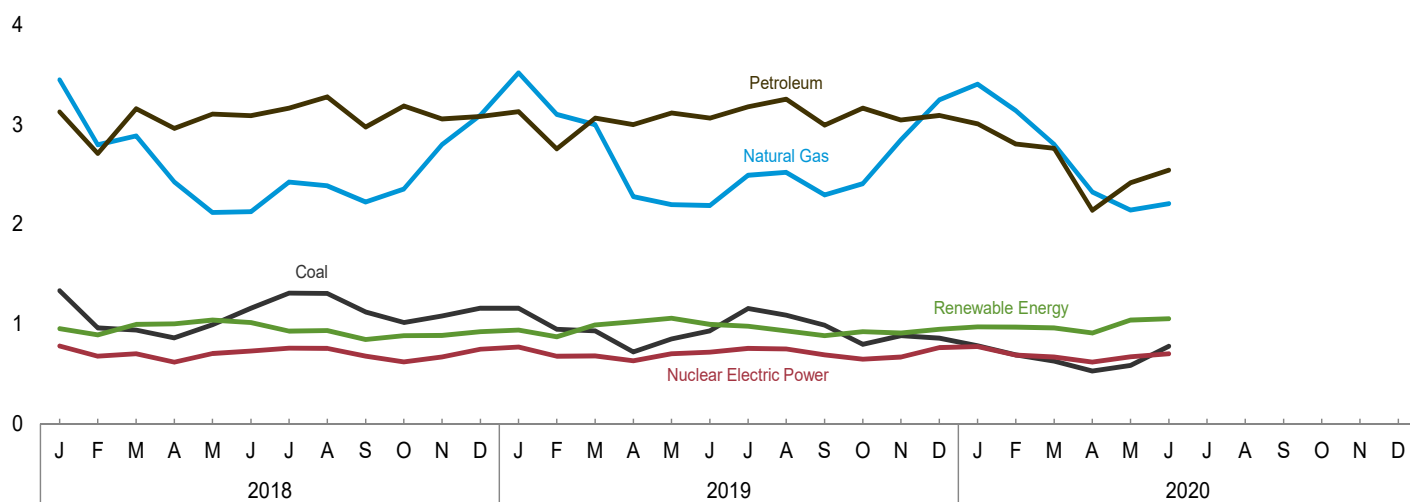
**Figure 1.3 Primary Energy Consumption**

(Quadrillion Btu)

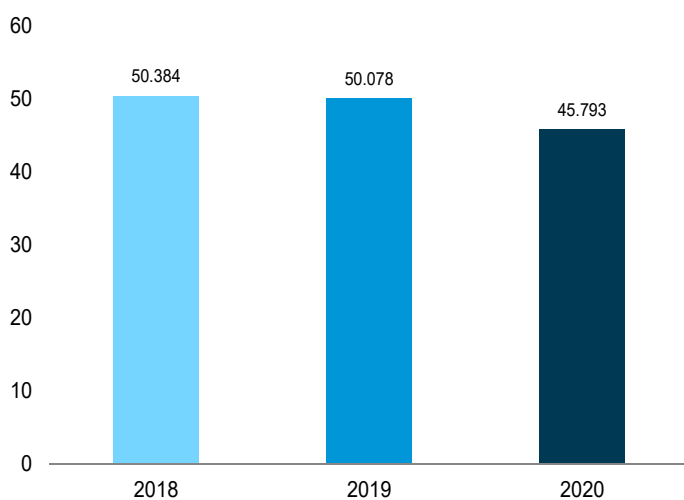
By Source, [a] 1949–2019



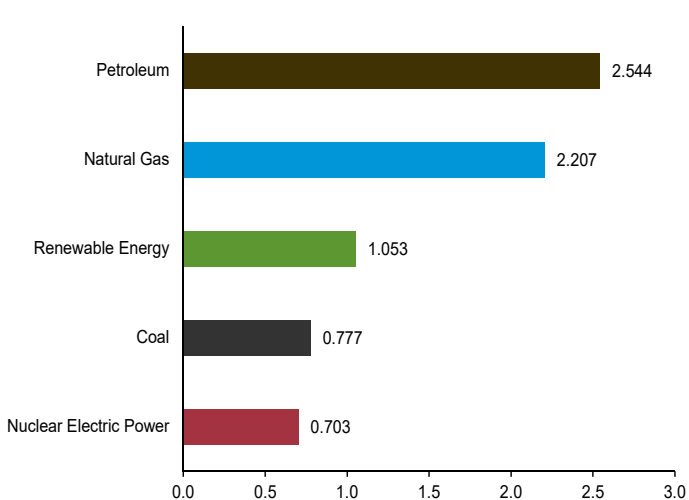
By Source, [a] Monthly



Total, January–June



By Source, [a] June 2020



[a] Small quantities of net imports of coal coke and electricity are not shown.

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

Source: Table 1.3.



**Table 1.3 Primary Energy Consumption by Source**  
(Quadrillion Btu)

	Fossil Fuels <sup>a</sup>				Nuclear Electric Power	Renewable Energy <sup>b</sup>						Total <sup>g</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	Wind	Bio-mass	Total	
<b>1950 Total</b> .....	12.347	5.968	13.298	31.615	0.000	1.415	NA	NA	NA	1.562	2.978	34.599
<b>1955 Total</b> .....	11.167	8.998	17.225	37.380	.000	1.360	NA	NA	NA	1.424	2.784	40.178
<b>1960 Total</b> .....	9.838	12.385	19.874	42.091	.006	1.608	(s)	NA	NA	1.320	2.928	45.041
<b>1965 Total</b> .....	11.581	15.769	23.184	50.515	.043	2.059	.002	NA	NA	1.335	3.396	53.953
<b>1970 Total</b> .....	12.265	21.795	29.499	63.501	.239	2.634	.006	NA	NA	1.431	4.070	67.817
<b>1975 Total</b> .....	12.663	19.948	32.699	65.323	1.900	3.155	.034	NA	NA	1.499	4.687	71.931
<b>1980 Total</b> .....	15.423	20.235	34.159	69.782	2.739	2.900	.053	NA	NA	2.475	5.428	78.021
<b>1985 Total</b> .....	17.478	17.703	30.866	66.035	4.076	2.970	.097	(s)	(s)	3.016	6.084	76.334
<b>1990 Total</b> .....	19.173	19.603	33.500	72.281	6.104	3.046	.171	.059	.029	2.735	6.040	84.433
<b>1995 Total</b> .....	20.089	22.671	34.341	77.162	7.075	3.205	.152	.068	.033	3.101	6.559	90.931
<b>2000 Total</b> .....	22.580	23.824	38.152	84.620	7.862	2.811	.164	.063	.057	3.008	6.104	98.702
<b>2001 Total</b> .....	21.914	22.773	38.084	82.800	8.029	2.242	.164	.062	.070	2.622	5.160	96.064
<b>2002 Total</b> .....	21.904	23.510	38.117	83.592	8.145	2.689	.171	.060	.105	2.701	5.726	97.535
<b>2003 Total</b> .....	22.321	22.831	38.707	83.909	7.960	2.793	.173	.058	.113	2.806	5.944	97.835
<b>2004 Total</b> .....	22.466	22.923	40.139	85.666	8.223	2.688	.178	.058	.142	3.008	6.075	100.002
<b>2005 Total</b> .....	22.797	22.565	40.217	85.623	8.161	2.703	.181	.058	.178	3.114	6.234	100.102
<b>2006 Total</b> .....	22.447	22.239	39.731	84.477	8.215	2.869	.181	.061	.264	3.262	6.637	99.392
<b>2007 Total</b> .....	22.749	23.663	39.368	85.805	8.459	2.446	.186	.066	.341	3.485	6.523	100.893
<b>2008 Total</b> .....	22.387	23.843	36.769	83.041	8.426	2.511	.192	.074	.546	3.851	7.175	98.754
<b>2009 Total</b> .....	19.691	23.416	34.779	77.862	8.355	2.669	.200	.078	.721	3.940	7.608	93.942
<b>2010 Total</b> .....	20.834	24.575	R 35.321	R 80.723	8.434	2.539	.208	.091	.923	4.506	8.267	R 97.513
<b>2011 Total</b> .....	19.658	24.955	R 34.639	R 79.263	8.269	3.103	.212	.112	1.168	4.609	9.204	R 96.863
<b>2012 Total</b> .....	17.378	26.089	R 33.833	R 77.304	8.062	2.629	.212	.159	1.340	4.508	8.847	R 94.374
<b>2013 Total</b> .....	18.039	26.805	R 34.398	R 79.224	8.244	2.562	.214	.225	1.601	4.848	9.451	R 97.117
<b>2014 Total</b> .....	17.998	27.383	R 34.658	R 80.017	8.338	2.467	.214	.338	1.728	4.994	9.740	R 98.276
<b>2015 Total</b> .....	15.549	28.191	R 35.368	R 79.090	8.337	2.321	.212	.427	1.777	4.983	9.721	R 97.375
<b>2016 Total</b> .....	14.226	28.400	R 35.712	R 78.319	8.427	2.472	.210	.570	2.096	5.015	10.363	R 97.335
<b>2017 Total</b> .....	13.837	28.055	R 36.043	R 77.907	8.419	2.767	.210	.777	2.343	4.979	11.077	R 97.595
<b>2018 January</b> .....	1.334	3.449	R 3.126	R 7.905	.780	.228	.018	.049	.233	.426	.954	R 9.653
<b>February</b> .....	.963	2.798	R 2.711	R 6.471	.677	.227	.016	.055	.211	.382	.892	R 8.053
<b>March</b> .....	.941	2.887	R 3.159	R 6.985	.701	.235	.018	.074	.241	.428	.996	R 8.697
<b>April</b> .....	.863	2.425	R 2.962	R 6.247	.618	.256	.016	.086	.241	.402	1.001	R 7.876
<b>May</b> .....	.993	2.119	R 3.104	R 6.215	.704	.277	.018	.096	.218	.430	1.040	R 7.972
<b>June</b> .....	1.160	2.127	R 3.089	R 6.375	.729	.251	.017	.102	.225	.419	1.015	R 8.133
<b>July</b> .....	1.311	2.423	R 3.165	R 6.897	.758	.229	.018	.097	.150	.435	.928	R 8.598
<b>August</b> .....	1.309	2.385	R 3.277	R 6.969	.756	.200	.018	.095	.181	.440	.934	R 8.676
<b>September</b> .....	1.120	2.223	R 2.975	R 6.317	.677	.174	.017	.085	.169	.400	.845	R 7.850
<b>October</b> .....	1.017	2.355	R 3.187	R 6.557	.621	.178	.017	.072	.193	.423	.884	R 8.071
<b>November</b> .....	1.082	2.801	R 3.057	R 6.937	.669	.199	.017	.056	.200	.414	.887	R 8.502
<b>December</b> .....	1.158	3.095	R 3.080	R 7.330	.749	.208	.019	.048	.221	.429	.925	R 9.015
<b>Total</b> .....	13.252	31.088	R 36.892	R 81.205	8.438	2.663	.209	.916	2.482	5.031	11.301	R 101.096
<b>2019 January</b> .....	1.160	3.520	R 3.130	R 7.807	.771	.220	.018	.054	.229	R .419	.941	R 9.530
<b>February</b> .....	.948	3.103	R 2.757	R 6.808	.677	.199	.017	.058	.209	R .390	R .872	R 8.367
<b>March</b> .....	.933	3.000	R 3.065	R 6.997	.680	.233	.018	.086	.238	R .417	R .991	R 8.677
<b>April</b> .....	.720	2.277	R 3.001	R 5.997	.633	.232	.016	.098	.270	.406	1.023	R 7.661
<b>May</b> .....	.850	2.196	R 3.116	R 6.160	.702	.274	.018	.105	.236	R .428	1.060	R 7.933
<b>June</b> .....	.931	2.188	R 3.065	R 6.182	.719	.241	.018	.113	.209	R .417	R .997	R 7.911
<b>July</b> .....	1.156	2.491	R 3.179	R 6.824	.755	.216	.018	.116	.201	R .427	R .978	R 8.569
<b>August</b> .....	1.088	2.522	R 3.255	R 6.863	.752	.192	.018	.112	.181	R .430	R .932	R 8.561
<b>September</b> .....	.989	2.294	R 2.995	R 6.275	.691	.149	.018	.097	.222	R .399	.884	R 7.862
<b>October</b> .....	.798	2.409	R 3.165	R 6.370	.649	.148	.017	.087	.256	R .415	R .924	R 7.949
<b>November</b> .....	.884	2.849	R 3.046	R 6.778	.670	.187	.015	.064	.233	R .410	R .910	R 8.370
<b>December</b> .....	.858	3.249	R 3.093	R 7.197	.764	.202	.017	.054	.247	R .428	R .949	R 8.924
<b>Total</b> .....	11.315	32.098	R 36.866	R 80.258	8.462	2.492	.209	1.043	2.732	4.985	R 11.461	R 100.314
<b>2020 January</b> .....	.783	3.404	3.007	7.192	.776	.221	.016	.066	.259	.411	.973	8.951
<b>February</b> .....	.691	3.141	2.805	6.635	.690	.228	.015	.079	.266	.383	.971	8.306
<b>March</b> .....	.630	2.803	2.761	6.193	.669	.203	.019	.094	.268	.380	.963	7.838
<b>April</b> .....	.528	2.325	2.140	4.992	.619	.189	.017	.114	.269	.321	.910	R 6.532
<b>May</b> .....	.586	2.142	2.416	5.144	.673	.268	.018	.134	.257	.364	1.041	6.870
<b>June</b> .....	.777	2.207	2.544	5.527	.703	.261	.017	.132	.274	.369	1.053	7.296
<b>6-Month Total</b> .....	3.995	16.022	15.673	35.683	4.128	1.370	.102	.619	1.593	2.228	5.912	45.793
<b>2019 6-Month Total</b> .....	5.542	16.284	18.134	39.952	4.182	1.398	.105	.513	1.392	2.475	5.884	50.078
<b>2018 6-Month Total</b> .....	6.254	15.806	18.151	40.198	4.209	1.475	.103	.462	1.369	2.489	5.897	50.384

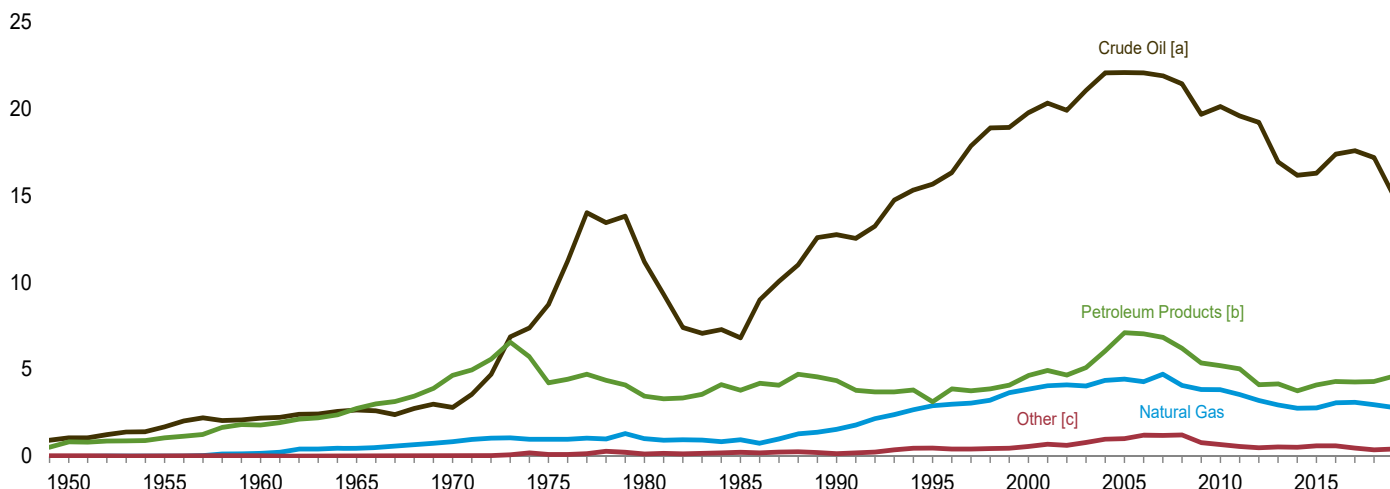
<sup>a</sup> Includes non-combustion use of fossil fuels.  
<sup>b</sup> Most data are estimates. See Tables 10.1–10.2c for notes on series components and estimation; and see Note, "Renewable Energy Production and Consumption," at end of Section 10.  
<sup>c</sup> Natural gas only; excludes supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.  
<sup>d</sup> Petroleum products supplied; excludes biofuels that have been blended with petroleum—biofuels are included in "Biomass."  
<sup>e</sup> Includes coal coke net imports. See Tables 1.4c.  
<sup>f</sup> Conventional hydroelectric power.  
<sup>g</sup> Includes coal coke net imports and electricity net imports, which are not

separately displayed. See Tables 1.4c.  
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.

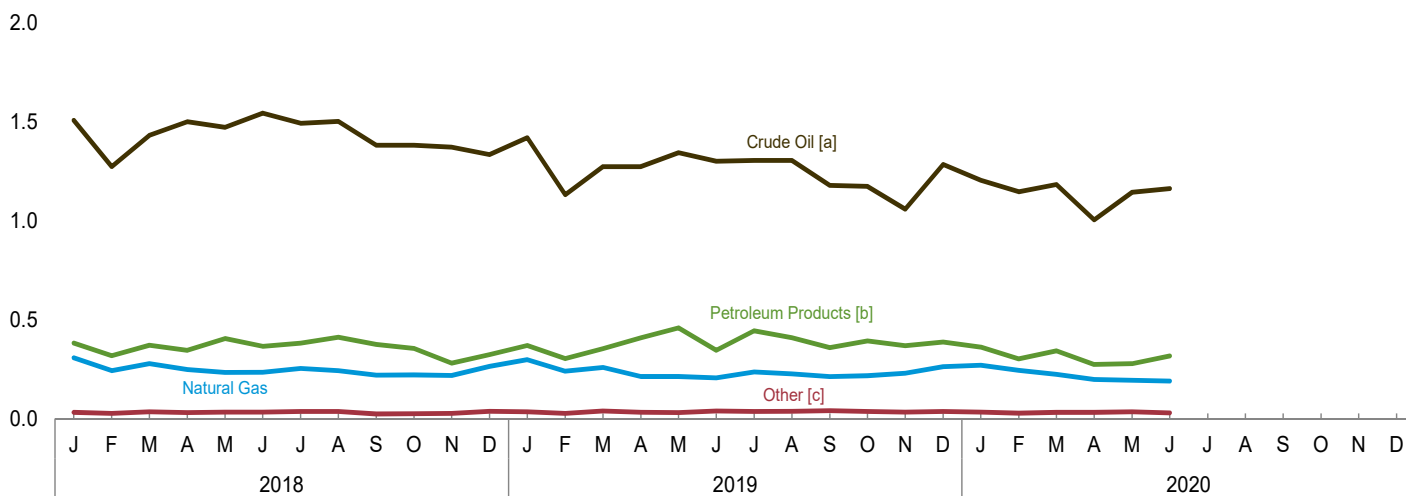
**Figure 1.4a Primary Energy Imports**

(Quadrillion Btu)

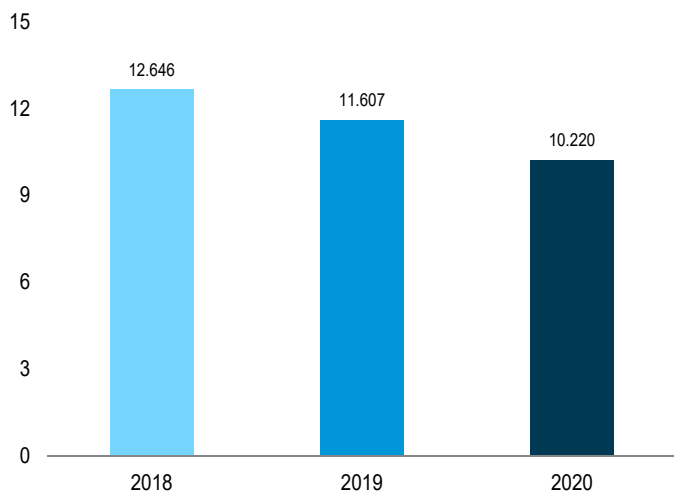
By Source, 1949–2019



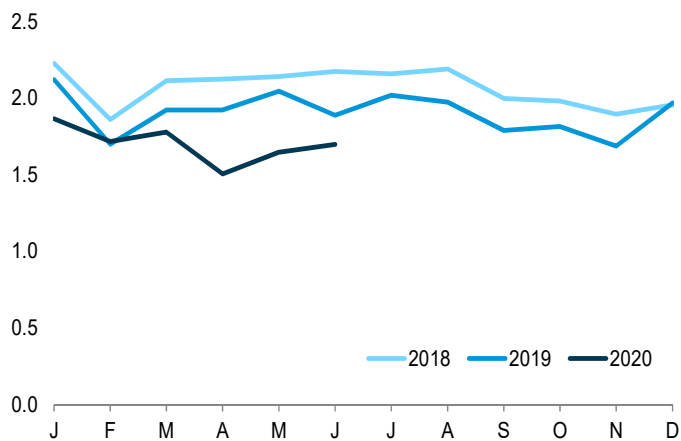
By Source, Monthly



Total, January–June



Total, Monthly



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

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

[c] Coal, coal coke, biomass, and electricity.

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

Source: Table 1.4a.

**Table 1.4a Primary Energy Imports by Source**  
(Quadrillion Btu)

	Imports								
	Coal	Coal Coke	Natural Gas	Petroleum			Biomass <sup>c</sup>	Electricity	Total
				Crude Oil <sup>a</sup>	Petroleum Products <sup>b</sup>	Total			
1950 Total .....	0.009	0.011	0.000	1.056	0.830	1.886	NA	0.007	1.913
1955 Total .....	.008	.003	.011	1.691	1.061	2.752	NA	.016	2.790
1960 Total .....	.007	.003	.161	2.196	1.802	3.999	NA	.018	4.188
1965 Total .....	.005	.002	.471	2.654	2.748	5.402	NA	.012	5.892
1970 Total .....	.001	.004	.846	2.814	4.656	7.470	NA	.021	8.342
1975 Total .....	.024	.045	.978	8.721	4.227	12.948	NA	.038	14.032
1980 Total .....	.030	.016	1.006	11.195	3.463	14.658	NA	.085	15.796
1985 Total .....	.049	.014	.952	6.814	3.796	10.609	NA	.157	11.781
1990 Total .....	.067	.019	1.551	12.766	4.351	17.117	NA	.063	18.817
1995 Total .....	.237	.095	2.901	15.669	3.131	18.800	.001	.146	22.180
2000 Total .....	.313	.094	3.869	19.783	4.641	24.424	(s)	.166	28.865
2001 Total .....	.495	.063	4.068	20.348	4.946	25.294	.002	.131	30.052
2002 Total .....	.422	.080	4.104	19.920	4.677	24.597	.002	.125	29.331
2003 Total .....	.626	.068	4.042	21.060	5.105	26.165	.002	.104	31.007
2004 Total .....	.682	.170	4.365	22.082	6.063	28.145	.013	.117	33.492
2005 Total .....	.762	.088	4.450	22.091	7.108	29.198	.012	.150	34.659
2006 Total .....	.906	.101	4.291	22.085	7.054	29.139	.066	.146	34.649
2007 Total .....	.909	.061	4.723	21.914	6.842	28.756	.055	.175	34.679
2008 Total .....	.855	.089	4.084	21.448	6.214	27.662	.085	.195	32.970
2009 Total .....	.566	.009	3.845	19.699	5.367	25.066	.027	.178	29.690
2010 Total .....	.484	.030	3.834	20.140	5.219	25.359	.004	.154	29.866
2011 Total .....	.327	.035	3.555	19.595	5.038	24.633	.019	.178	28.748
2012 Total .....	.212	.028	3.216	19.239	4.122	23.361	.049	.202	27.068
2013 Total .....	.199	.003	2.955	16.957	4.169	21.126	.102	.236	24.623
2014 Total .....	.252	.002	2.763	16.178	3.773	19.951	.046	.227	23.241
2015 Total .....	.256	.003	2.786	16.299	4.111	20.410	.079	.259	23.794
2016 Total .....	.220	.006	3.082	17.392	4.309	21.700	.123	.248	25.378
2017 Total .....	.167	.001	3.109	17.597	4.277	21.874	.081	.224	25.457
2018 January .....	.010	(s)	.307	1.507	.381	1.888	.004	.018	2.228
February .....	.007	(s)	.243	1.273	.318	1.591	.003	.016	1.861
March .....	.011	(s)	.278	1.432	.371	1.803	.004	.019	2.114
April .....	.010	.001	.248	1.501	.345	1.847	.004	.015	2.125
May .....	.011	.001	.233	1.472	.404	1.876	.004	.018	2.142
June .....	.010	(s)	.234	1.544	.365	1.909	.004	.019	2.176
July .....	.014	(s)	.253	1.492	.382	1.873	.002	.018	2.161
August .....	.010	(s)	.243	1.502	.411	1.913	.005	.021	2.192
September .....	.005	(s)	.219	1.381	.375	1.756	.003	.015	1.999
October .....	.006	.001	.221	1.382	.354	1.736	.006	.013	1.982
November .....	.008	(s)	.218	1.372	.280	1.652	.005	.013	1.896
December .....	.018	(s)	.264	1.334	.323	1.657	.004	.014	1.958
Total .....	.122	.003	2.961	17.192	4.309	21.501	.048	.199	24.833
2019 January .....	.013	(s)	.298	R 1.420	R .370	R 1.790	.005	.016	R 2.122
February .....	.007	(s)	.239	R 1.132	R .303	R 1.435	.003	.016	R 1.700
March .....	.015	(s)	.259	R 1.274	R .353	R 1.628	.006	.017	R 1.925
April .....	.011	.001	.212	R 1.273	R .409	R 1.681	.006	.015	R 1.925
May .....	.008	(s)	.213	R 1.344	R .459	R 1.803	.005	.016	R 2.046
June .....	.014	(s)	.206	R 1.300	R .345	R 1.645	.007	.018	R 1.889
July .....	.011	(s)	.236	R 1.304	R .444	R 1.748	.007	.019	R 2.021
August .....	.011	.001	.226	R 1.305	R .408	R 1.713	R .006	.020	R 1.975
September .....	.013	(s)	.213	R 1.179	R .358	R 1.537	.007	.018	R 1.789
October .....	.015	(s)	.216	R 1.173	R .392	R 1.565	.007	.012	R 1.816
November .....	.010	.001	.229	R 1.058	R .368	R 1.426	.006	.017	R 1.688
December .....	.011	(s)	.262	R 1.284	.387	R 1.671	.007	.018	R 1.969
Total .....	.138	.003	2.810	R 15.045	R 4.596	R 19.641	R .072	.201	R 22.865
2020 January .....	.011	(s)	.269	R 1.204	.361	R 1.565	.006	.016	R 1.866
February .....	.007	(s)	.244	R 1.146	.302	R 1.448	.005	.015	R 1.719
March .....	.009	(s)	.223	R 1.183	.342	R 1.525	.005	.017	R 1.779
April .....	.007	(s)	.198	R 1.004	.274	R 1.278	.007	.016	R 1.507
May .....	.010	.001	.194	R 1.144	.278	R 1.421	.005	.018	R 1.649
June .....	.006	(s)	.190	1.163	.317	1.480	.006	.018	1.699
6-Month Total .....	.051	.001	1.317	6.843	1.874	8.717	.034	.100	10.220
2019 6-Month Total .....	.068	.001	1.427	7.744	2.238	9.982	.031	.097	11.607
2018 6-Month Total .....	.059	.002	1.544	8.729	2.184	10.914	.022	.105	12.646

<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, natural gasoline, and gasoline blending components. Does not include biofuels.

<sup>c</sup> 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.

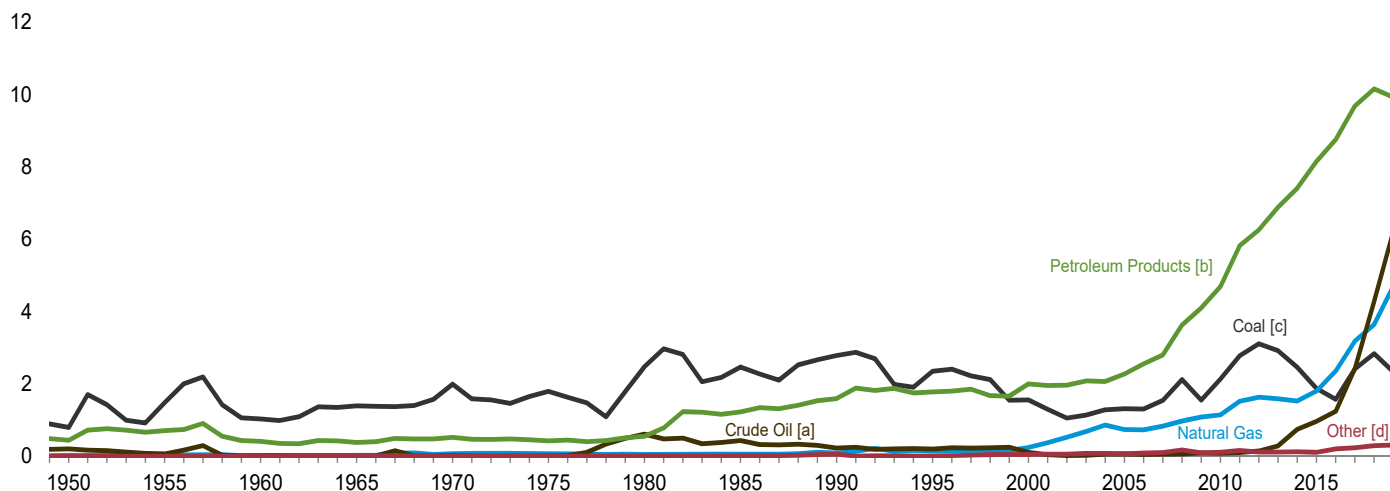
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#summary> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

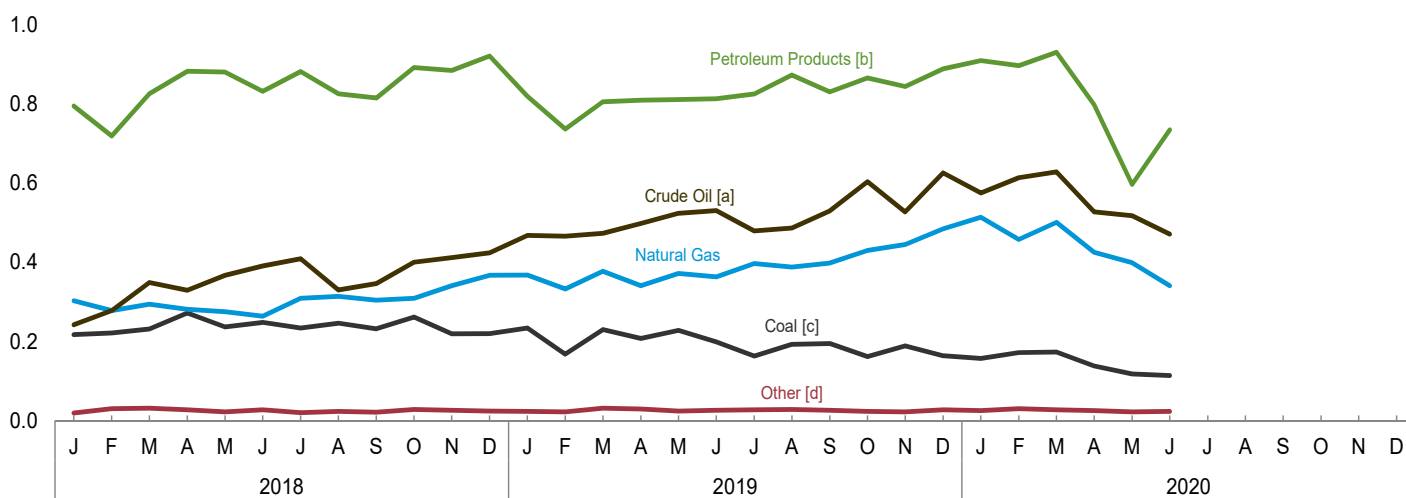
**Figure 1.4b Primary Energy Exports**

(Quadrillion Btu)

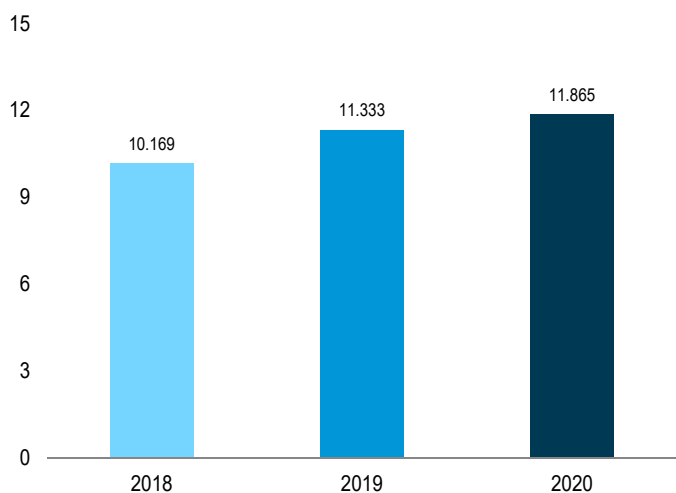
By Source, 1949-2019



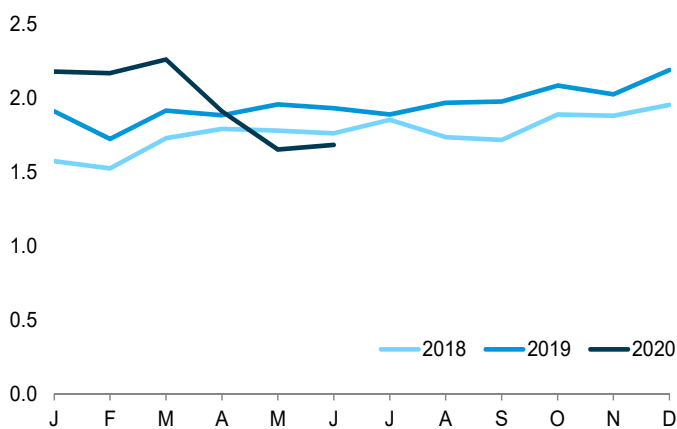
By Source, Monthly



Total, January–June



Total, Monthly



[a] Crude oil and lease condensate.

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

[c] Includes coal coke.

[d] Biomass and electricity

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

Source: Table 1.4b.

**Table 1.4b Primary Energy Exports by Source**  
(Quadrillion Btu)

	Exports								
	Coal	Coal Coke	Natural Gas	Petroleum			Biomass <sup>c</sup>	Electricity	Total
				Crude Oil <sup>a</sup>	Petroleum Products <sup>b</sup>	Total			
1950 Total .....	0.786	0.010	0.027	0.202	0.440	0.642	NA	0.001	1.465
1955 Total .....	1.465	.013	.032	.067	.707	.774	NA	.002	2.286
1960 Total .....	1.023	.009	.012	.018	.413	.431	NA	.003	1.477
1965 Total .....	1.376	.021	.027	.006	.386	.392	NA	.013	1.829
1970 Total .....	1.936	.061	.072	.029	.520	.549	NA	.014	2.632
1975 Total .....	1.761	.032	.074	.012	.427	.439	NA	.017	2.323
1980 Total .....	2.421	.051	.049	.609	.551	1.160	NA	.014	3.695
1985 Total .....	2.438	.028	.056	.432	1.225	1.657	NA	.017	4.196
1990 Total .....	2.772	.014	.087	.230	1.594	1.824	NA	.055	4.752
1995 Total .....	2.318	.034	.156	.200	1.776	1.976	NA	.012	4.496
2000 Total .....	1.528	.028	.245	.106	2.003	2.110	NA	.051	3.962
2001 Total .....	1.265	.033	.377	.043	1.956	1.999	(s)	.056	3.731
2002 Total .....	1.032	.020	.520	.019	1.963	1.982	(s)	.054	3.608
2003 Total .....	1.117	.018	.686	.026	2.083	2.110	.001	.082	4.013
2004 Total .....	1.253	.033	.862	.057	2.068	2.125	.001	.078	4.351
2005 Total .....	1.273	.043	.735	.067	2.276	2.344	.001	.065	4.462
2006 Total .....	1.264	.040	.730	.052	2.554	2.606	.005	.083	4.727
2007 Total .....	1.507	.036	.830	.058	2.803	2.861	.036	.069	5.338
2008 Total .....	2.071	.049	.972	.061	3.626	3.686	.089	.083	6.949
2009 Total .....	1.515	.032	1.082	.093	4.101	4.194	.035	.062	6.920
2010 Total .....	2.101	.036	1.147	.088	4.691	4.780	.047	.065	8.176
2011 Total .....	2.751	.024	1.519	.100	5.820	5.919	.108	.051	10.373
2012 Total .....	3.087	.024	1.633	.143	6.261	6.404	.078	.041	11.267
2013 Total .....	2.895	.021	1.587	.284	6.886	7.170	.076	.039	11.788
2014 Total .....	2.435	.023	1.528	.744	7.414	8.158	.081	.045	12.270
2015 Total .....	1.852	.021	1.800	.964	8.153	9.118	.080	.031	12.902
2016 Total .....	1.546	.025	2.356	1.238	8.752	9.990	.181	.021	14.119
2017 Total .....	2.388	.030	3.182	2.424	9.684	12.108	.206	.032	17.946
2018 January .....	.213	.004	.303	.242	.795	1.037	.015	.004	1.575
February .....	.219	.001	.278	.278	.719	.997	.025	.004	1.526
March .....	.229	.002	.294	.349	.826	1.175	.026	.004	1.731
April .....	.269	.003	.281	.329	.883	1.213	.021	.006	1.793
May .....	.234	.002	.275	.367	.881	1.248	.018	.004	1.781
June .....	.246	.002	.264	.391	.832	1.224	.023	.004	1.763
July .....	.232	.002	.309	.409	.882	1.291	.017	.003	1.854
August .....	.244	.001	.314	.330	.826	1.155	.019	.004	1.738
September .....	.230	.001	.304	.346	.815	1.161	.018	.004	1.718
October .....	.259	.002	.309	.400	.892	1.293	.025	.003	1.892
November .....	.216	.003	.341	.412	.885	1.297	.022	.004	1.882
December .....	.217	.003	.367	.424	.921	1.345	.021	.003	1.955
Total .....	2.809	.029	3.640	4.277	10.158	14.434	.249	.047	21.208
2019 January .....	.231	.003	.368	R .468	R .820	R 1.287	R .018	.005	R 1.912
February .....	.167	.001	.333	R .466	R .737	R 1.203	R .017	.005	R 1.725
March .....	.229	.001	.377	R .473	R .806	R 1.279	R .022	.009	R 1.917
April .....	.206	.002	.341	R .498	R .810	R 1.309	R .022	.007	R 1.886
May .....	.226	.002	.372	R .524	R .811	R 1.335	R .019	.006	R 1.959
June .....	.198	.002	.363	R .531	R .813	R 1.344	R .021	.005	R 1.933
July .....	.161	.002	.397	R .479	R .825	R 1.304	.020	.007	R 1.891
August .....	.192	.002	.388	R .487	R .873	R 1.360	.022	.006	R 1.970
September .....	.192	.003	.398	R .530	.831	1.360	R .019	.006	1.979
October .....	.160	.003	.430	R .604	R .866	R 1.470	R .018	.005	R 2.086
November .....	.186	.002	.445	R .527	R .844	1.372	R .018	.004	2.028
December .....	.161	.003	.485	R .626	R .889	R 1.515	.023	.004	R 2.191
Total .....	2.309	.024	4.698	R 6.212	R 9.926	R 16.139	R .240	.068	R 23.478
2020 January .....	.155	.002	.514	.575	R .910	R 1.485	.020	.005	R 2.181
February .....	.170	.002	.458	.614	.897	R 1.511	.025	.006	R 2.171
March .....	.172	.001	.501	.629	.931	R 1.561	.023	.004	R 2.263
April .....	.136	.001	R .425	.527	.798	1.325	.020	.005	R 1.912
May .....	.117	.001	R .399	.518	.597	1.115	R .016	.005	1.654
June .....	.114	(s)	.341	.471	.735	1.206	.018	.004	1.685
6-Month Total .....	.864	.008	2.639	3.335	4.869	8.204	.122	.030	11.865
2019 6-Month Total .....	1.256	.010	2.155	2.959	4.798	7.757	.118	.036	11.333
2018 6-Month Total .....	1.411	.015	1.696	1.956	4.937	6.893	.128	.026	10.169

<sup>a</sup> Crude oil and lease condensate.  
<sup>b</sup> Petroleum products, unfinished oils, natural gasoline, and gasoline blending components. Does not include biofuels.

<sup>c</sup> Beginning in 2001, includes biodiesel. Beginning in 2010, also includes fuel ethanol (minus denaturant). Beginning in 2016, also includes wood and wood-derived fuels.

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

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

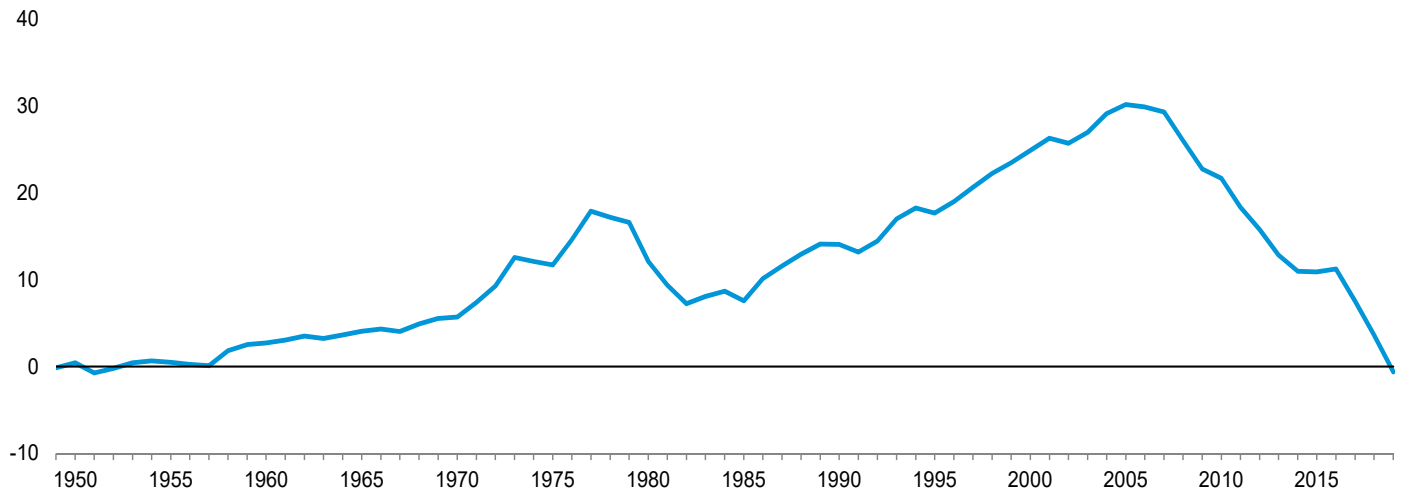
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#summary> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

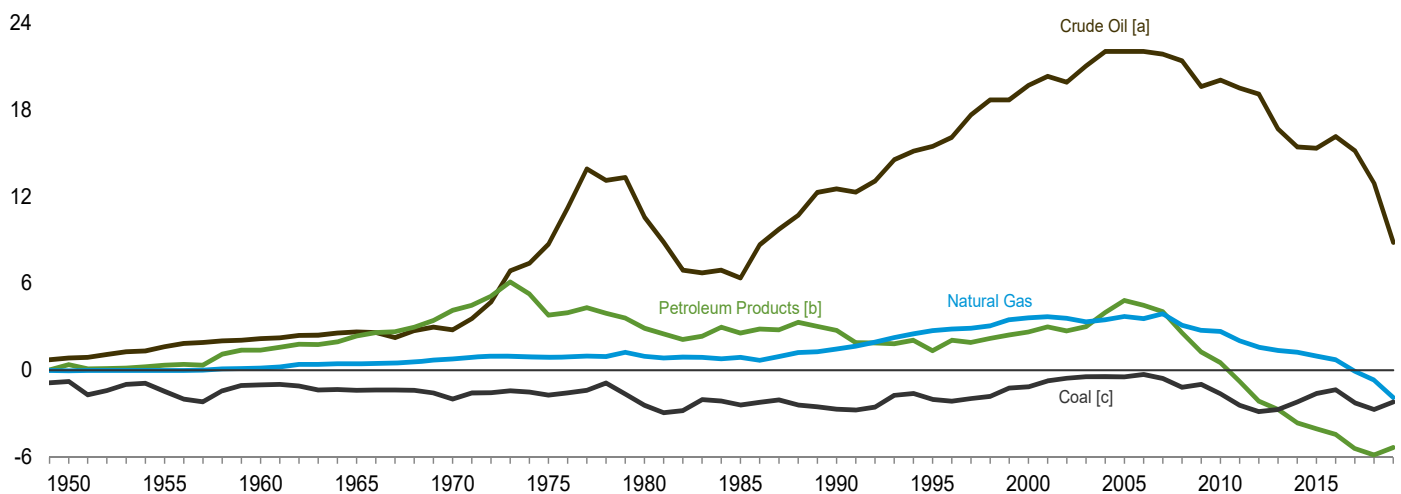
**Figure 1.4c Primary Energy Net Imports**

(Quadrillion Btu)

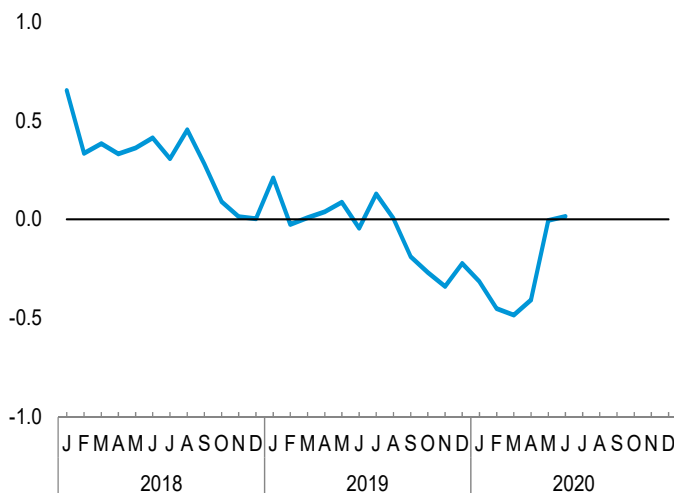
Total, 1949–2019



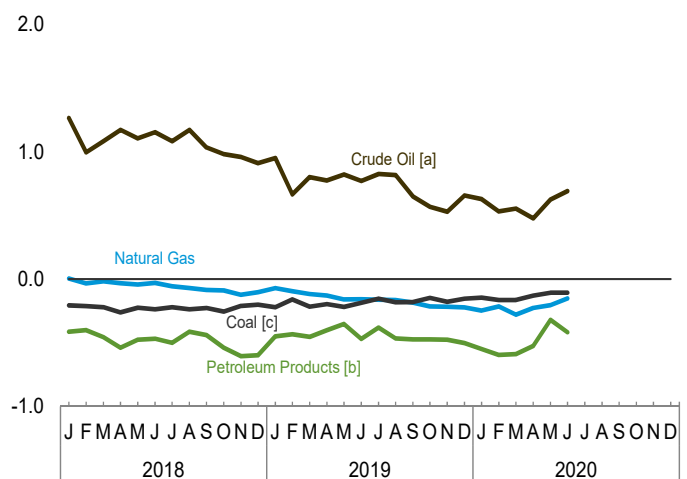
By Major Source, 1949–2019



Total, Monthly



By Major Source, Monthly



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

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

[c] Includes coal coke.

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

Source: Table 1.4c.

**Table 1.4c Primary Energy Net Imports by Source**  
(Quadrillion Btu)

	Net Imports <sup>a</sup>								
	Coal	Coal Coke	Natural Gas	Petroleum			Biomass <sup>d</sup>	Electricity	Total
				Crude Oil <sup>b</sup>	Petroleum Products <sup>c</sup>	Total			
<b>1950 Total</b> .....	-0.777	0.001	-0.027	0.854	0.390	1.244	NA	0.006	0.448
<b>1955 Total</b> .....	-1.456	-0.010	-0.021	1.624	.354	1.978	NA	.014	.504
<b>1960 Total</b> .....	-1.017	-.006	.149	2.178	1.389	3.568	NA	.015	2.710
<b>1965 Total</b> .....	-1.372	-.018	.444	2.648	2.362	5.010	NA	(s)	4.063
<b>1970 Total</b> .....	-1.935	-.058	.774	2.785	4.136	6.921	NA	.007	5.709
<b>1975 Total</b> .....	-1.738	.014	.904	8.708	3.800	12.508	NA	.021	11.709
<b>1980 Total</b> .....	-2.391	-.035	.957	10.586	2.912	13.499	NA	.071	12.101
<b>1985 Total</b> .....	-2.389	-.013	.896	6.381	2.570	8.952	NA	.140	7.584
<b>1990 Total</b> .....	-2.705	.005	1.464	12.536	2.757	15.293	NA	.008	14.065
<b>1995 Total</b> .....	-2.081	.061	2.745	15.469	1.355	16.824	.001	.134	17.684
<b>2000 Total</b> .....	-1.215	.065	3.623	19.676	2.638	22.314	(s)	.115	24.904
<b>2001 Total</b> .....	-.771	.029	3.691	20.305	2.990	23.294	.001	.075	26.321
<b>2002 Total</b> .....	-.610	.061	3.583	19.901	2.714	22.615	.002	.072	25.722
<b>2003 Total</b> .....	-.491	.051	3.356	21.034	3.021	24.055	.001	.022	26.994
<b>2004 Total</b> .....	-.571	.138	3.503	22.025	3.995	26.020	.012	.039	29.141
<b>2005 Total</b> .....	-.512	.044	3.714	22.023	4.831	26.855	.011	.085	30.197
<b>2006 Total</b> .....	-.358	.061	3.560	22.032	4.501	26.533	.062	.063	29.921
<b>2007 Total</b> .....	-.598	.025	3.893	21.855	4.040	25.895	.019	.107	29.341
<b>2008 Total</b> .....	-1.215	.041	3.112	21.388	2.588	23.976	-.004	.112	26.021
<b>2009 Total</b> .....	-.949	-.024	2.763	19.606	1.266	20.872	-.009	.116	22.770
<b>2010 Total</b> .....	-1.617	-.006	2.687	20.052	.528	20.580	-.042	.089	21.690
<b>2011 Total</b> .....	-2.423	.011	2.036	19.495	-.781	18.714	-.089	.127	18.375
<b>2012 Total</b> .....	-2.875	.004	1.583	19.096	-2.139	16.957	-.029	.161	15.801
<b>2013 Total</b> .....	-2.696	-.017	1.369	16.673	-2.717	13.956	.026	.197	12.835
<b>2014 Total</b> .....	-2.183	-.022	1.235	15.434	-3.641	11.793	-.034	.182	10.971
<b>2015 Total</b> .....	-1.596	-.018	.986	15.335	-4.042	11.292	-.001	.227	10.892
<b>2016 Total</b> .....	-1.326	-.019	.725	16.154	-4.443	11.710	-.058	.227	11.259
<b>2017 Total</b> .....	-2.221	-.029	-.073	15.173	-5.407	9.766	-.124	.192	7.512
<b>2018 January</b> .....	-.203	-.004	.004	1.265	-.414	.851	-.011	.014	.652
February .....	-.212	-.001	-.035	.995	-.401	.594	-.023	.012	.335
March .....	-.218	-.002	-.017	1.083	-.455	.628	-.022	.015	.383
April .....	-.259	-.002	-.033	1.172	-.538	.634	-.017	.010	.332
May .....	-.223	-.002	-.042	1.106	-.477	.628	-.014	.014	.361
June .....	-.236	-.001	-.030	1.153	-.467	.685	-.019	.015	.413
July .....	-.217	-.002	-.056	1.082	-.500	.582	-.014	.015	.308
August .....	-.234	-.001	-.071	1.172	-.414	.758	-.015	.017	.453
September .....	-.225	-.001	-.085	1.035	-.440	.595	-.014	.011	.280
October .....	-.253	-.002	-.089	.982	-.539	.444	-.019	.010	.090
November .....	-.207	-.003	-.123	.960	-.605	.355	-.016	.009	.014
December .....	-.198	-.003	-.103	.910	-.598	.312	-.016	.011	.003
<b>Total</b> .....	<b>-2.688</b>	<b>-.026</b>	<b>-0.679</b>	<b>12.915</b>	<b>-5.849</b>	<b>7.066</b>	<b>-.201</b>	<b>.152</b>	<b>3.625</b>
<b>2019 January</b> .....	-.218	-.003	-.070	R .952	R -.450	R .503	R -.013	.011	R .210
February .....	-.159	-.001	-.094	R .666	R -.434	R .232	R -.014	.011	R -.025
March .....	-.215	-.001	-.118	R .801	R -.453	R .349	R -.016	.008	R .008
April .....	-.195	-.001	-.130	R .774	R -.402	R .373	-.017	.008	R .038
May .....	-.218	-.002	-.159	R .821	R -.352	R .468	-.013	.010	R .087
June .....	-.184	-.002	-.157	R .770	R -.469	R .301	R -.014	.012	R -.044
July .....	-.151	-.002	-.161	R .825	R -.381	R .444	-.014	.013	R .129
August .....	-.181	-.001	-.163	R .817	R -.465	R .353	-.017	.014	R .005
September .....	-.179	-.002	-.185	R .649	R -.473	R .176	-.012	.012	R -.189
October .....	-.145	-.002	-.214	R .569	R -.474	R .095	R -.011	.007	R -.269
November .....	-.177	-.002	-.216	R .530	R -.476	R .055	-.012	.012	R -.339
December .....	-.151	-.003	-.223	R .658	R -.502	R .156	-.016	.014	R -.223
<b>Total</b> .....	<b>-2.171</b>	<b>-.021</b>	<b>-1.888</b>	<b>8.833</b>	<b>R -5.331</b>	<b>R 3.502</b>	<b>R -.168</b>	<b>.133</b>	<b>R -.612</b>
<b>2020 January</b> .....	-.144	-.001	-.246	.629	-.549	.080	-.014	.011	R -.315
February .....	-.163	-.002	-.214	.532	-.595	-.063	-.020	.010	R -.451
March .....	-.162	-.001	-.279	.554	-.589	-.036	-.018	.013	R -.483
April .....	-.129	-.001	-.226	.477	-.524	-.047	-.013	.011	R -.406
May .....	-.107	(s)	R -.205	.625	-.320	.306	R -.011	.012	R -.005
June .....	-.108	(s)	-.152	.692	-.418	.274	-.012	.013	.015
<b>6-Month Total</b> .....	<b>-.813</b>	<b>-.007</b>	<b>-1.321</b>	<b>3.509</b>	<b>-2.995</b>	<b>.513</b>	<b>-.088</b>	<b>.070</b>	<b>-1.645</b>
<b>2019 6-Month Total</b> .....	<b>-1.189</b>	<b>-.009</b>	<b>-.727</b>	<b>4.784</b>	<b>-2.560</b>	<b>2.225</b>	<b>-.087</b>	<b>.061</b>	<b>.274</b>
<b>2018 6-Month Total</b> .....	<b>-1.352</b>	<b>-.013</b>	<b>-.152</b>	<b>6.774</b>	<b>-2.753</b>	<b>4.021</b>	<b>-.106</b>	<b>.079</b>	<b>2.477</b>

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

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

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

<sup>d</sup> Beginning in 2001, includes biodiesel. Beginning in 2010, also includes fuel ethanol (minus denaturant). Beginning in 2016, also includes wood and wood-derived fuels.

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

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

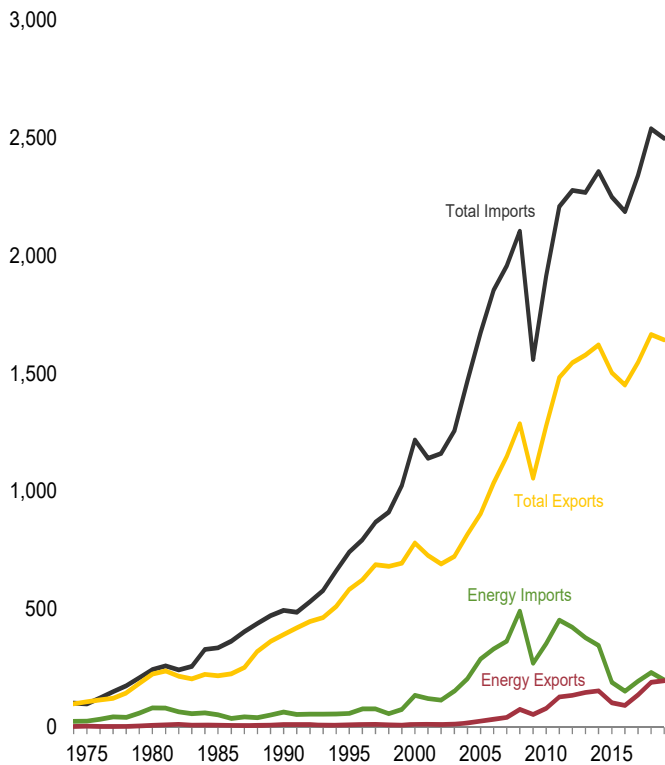
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#summary> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: Tables 1.4a and 1.4b.

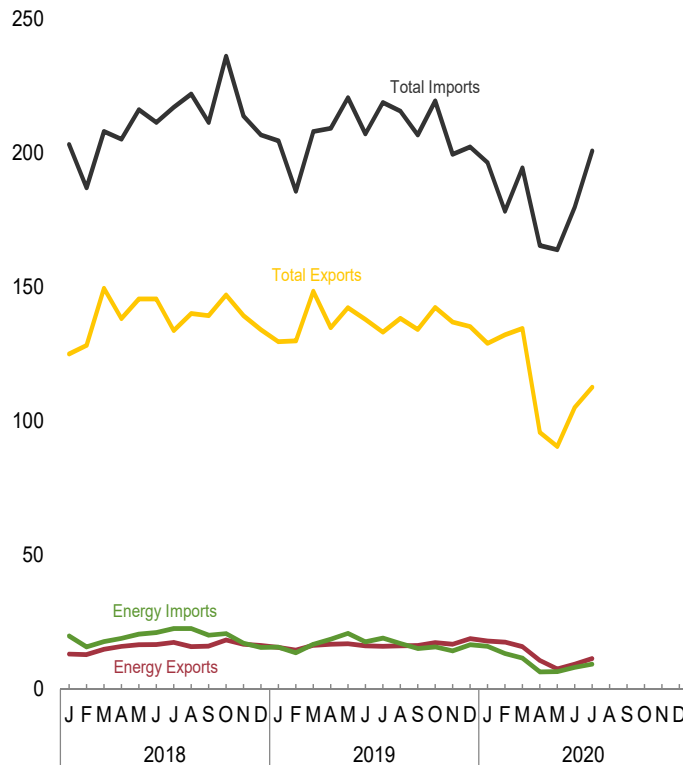
**Figure 1.5 Merchandise Trade Value**

(Billion Dollars[a])

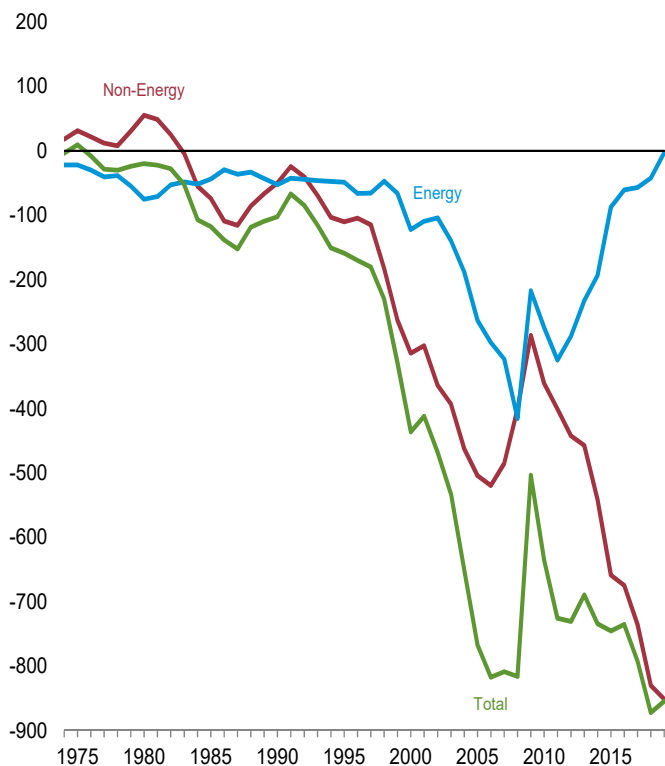
Imports and Exports, 1974–2019



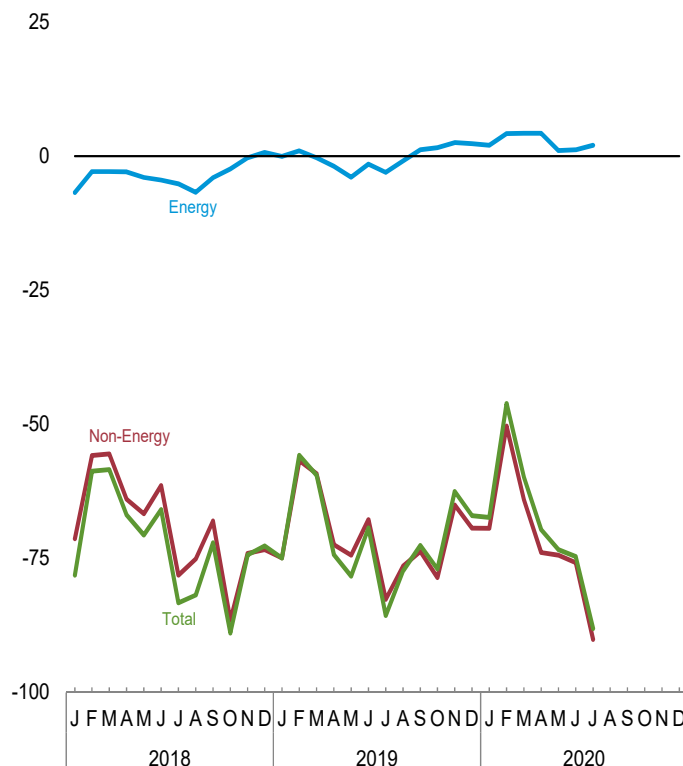
Imports and Exports, Monthly



Trade Balance, 1974–2019



Trade Balance, Monthly



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

Web Page: <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> .....	111,949	408,509	-296,560	136,054	423,860	-287,806	-442,640	1,545,821	2,276,267	-730,446
<b>2013 Total</b> .....	123,244	363,141	-239,897	147,572	379,758	-232,186	-457,284	1,578,517	2,267,987	-689,470
<b>2014 Total</b> .....	127,818	326,709	-198,891	154,498	347,474	-192,976	-541,506	1,621,874	2,356,356	-734,482
<b>2015 Total</b> .....	85,890	177,455	-91,565	103,612	190,501	-86,889	-658,594	1,503,328	2,248,811	-745,483
<b>2016 Total</b> .....	74,921	142,920	-67,999	92,971	153,800	-60,829	-674,497	1,451,460	2,186,786	-735,326
<b>2017 Total</b> .....	104,975	181,672	-76,697	137,920	194,790	-56,870	-735,526	1,547,195	2,339,591	-792,396
<b>2018 January</b> .....	10,015	18,086	-8,071	13,086	19,870	-6,784	-71,369	125,034	203,187	-78,153
February .....	9,786	14,623	-4,837	12,859	15,746	-2,887	-55,844	128,235	186,966	-58,731
March .....	11,571	16,733	-5,162	14,880	17,788	-2,908	-55,534	149,547	207,989	-58,442
April .....	12,710	18,028	-5,318	15,953	18,898	-2,945	-63,956	138,235	205,136	-66,901
May .....	13,118	19,738	-6,620	16,587	20,544	-3,957	-66,696	145,513	216,167	-70,653
June .....	13,477	20,295	-6,818	16,609	21,082	-4,473	-61,415	145,503	211,391	-65,888
July .....	13,777	21,605	-7,828	17,476	22,624	-5,148	-78,139	133,740	217,027	-83,287
August .....	12,248	21,597	-9,349	15,870	22,621	-6,751	-75,119	140,118	221,988	-81,870
September .....	12,708	19,282	-6,574	16,088	20,123	-4,035	-68,044	139,331	211,410	-72,079
October .....	14,637	19,760	-5,123	18,362	20,760	-2,398	-86,564	147,077	236,040	-88,962
November .....	13,193	15,809	-2,616	16,794	17,113	-319	-74,071	139,337	213,727	-74,390
December .....	12,420	13,932	-1,512	16,280	15,574	706	-73,391	134,018	206,702	-72,685
<b>Total</b> .....	<b>149,661</b>	<b>219,489</b>	<b>-69,828</b>	<b>190,843</b>	<b>232,741</b>	<b>-41,898</b>	<b>-830,143</b>	<b>1,665,688</b>	<b>2,537,729</b>	<b>-872,041</b>
<b>2019 January</b> .....	11,965	14,077	-2,112	15,609	15,674	-65	-74,915	129,608	204,587	-74,980
February .....	11,642	12,273	-631	14,555	13,581	974	-56,750	129,919	185,694	-55,776
March .....	12,896	15,335	-2,439	16,389	16,707	-318	-59,179	148,472	207,969	-59,497
April .....	12,953	17,808	-4,855	16,746	18,631	-1,885	-72,450	134,838	209,174	-74,335
May .....	13,369	20,087	-6,718	16,948	20,860	-3,912	-74,442	142,237	220,591	-78,354
June .....	12,771	16,978	-4,207	16,142	17,657	-1,515	-67,782	137,870	207,167	-69,297
July .....	12,669	18,265	-5,596	16,000	19,036	-3,036	-82,634	133,129	218,799	-85,670
August .....	13,196	16,240	-3,044	16,122	17,009	-887	-76,449	138,310	215,647	-77,336
September .....	12,912	14,396	-1,484	16,289	15,131	1,158	-73,721	134,162	206,725	-72,563
October .....	13,925	15,027	-1,102	17,376	15,804	1,572	-78,569	142,418	219,414	-76,997
November .....	13,187	13,281	-94	16,798	14,279	2,519	-65,055	136,940	199,476	-62,536
December .....	15,069	15,307	-238	18,863	16,531	2,332	-69,364	135,258	202,289	-67,032
<b>Total</b> .....	<b>156,553</b>	<b>189,075</b>	<b>-32,522</b>	<b>197,836</b>	<b>200,900</b>	<b>-3,064</b>	<b>-851,307</b>	<b>1,643,161</b>	<b>2,497,531</b>	<b>-854,371</b>
<b>2020 January</b> .....	14,000	14,873	-873	17,912	15,914	1,998	-69,402	128,993	196,397	-67,404
February .....	14,074	12,543	1,531	17,509	13,286	4,223	-50,326	132,182	178,285	-46,103
March .....	12,407	11,023	1,384	15,863	11,628	4,235	-64,057	134,560	194,382	-59,822
April .....	7,904	5,966	1,938	10,749	6,485	4,264	-73,916	95,799	165,452	-69,652
May .....	4,960	5,907	-947	7,559	6,518	1,041	-74,423	90,549	163,931	-73,382
June .....	6,722	7,555	-833	9,275	8,108	1,167	<sup>R</sup> -75,820	<sup>R</sup> 105,056	<sup>R</sup> 179,709	<sup>R</sup> -74,653
July .....	8,712	8,644	68	11,391	9,348	2,043	-90,154	112,664	200,774	-88,111
<b>7-Month Total</b> .....	<b>68,780</b>	<b>66,511</b>	<b>2,268</b>	<b>90,259</b>	<b>71,287</b>	<b>18,971</b>	<b>-498,098</b>	<b>799,802</b>	<b>1,278,930</b>	<b>-479,127</b>
<b>2019 7-Month Total</b> .....	<b>88,263</b>	<b>114,824</b>	<b>-26,558</b>	<b>112,387</b>	<b>122,147</b>	<b>-9,757</b>	<b>-488,152</b>	<b>956,073</b>	<b>1,453,981</b>	<b>-497,908</b>
<b>2018 7-Month Total</b> .....	<b>84,454</b>	<b>129,108</b>	<b>-44,654</b>	<b>107,450</b>	<b>136,552</b>	<b>-29,102</b>	<b>-452,953</b>	<b>965,807</b>	<b>1,447,863</b>	<b>-482,056</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.

<sup>R</sup>Revised.

Notes: • Monthly data are not adjusted for seasonal variations. • See Note 1, "Merchandise Trade Value," at end of section. • Totals may not equal sum of

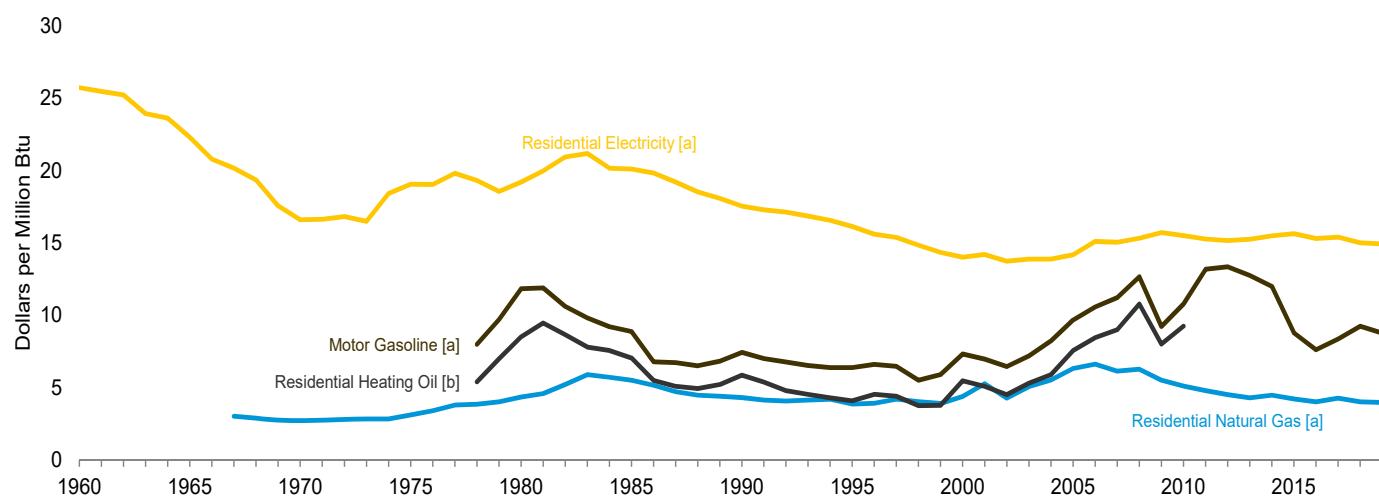
components due to independent rounding. • The U.S. import statistics reflect both government and nongovernment imports of merchandise from foreign countries into the U.S. customs territory, which comprises the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands.

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

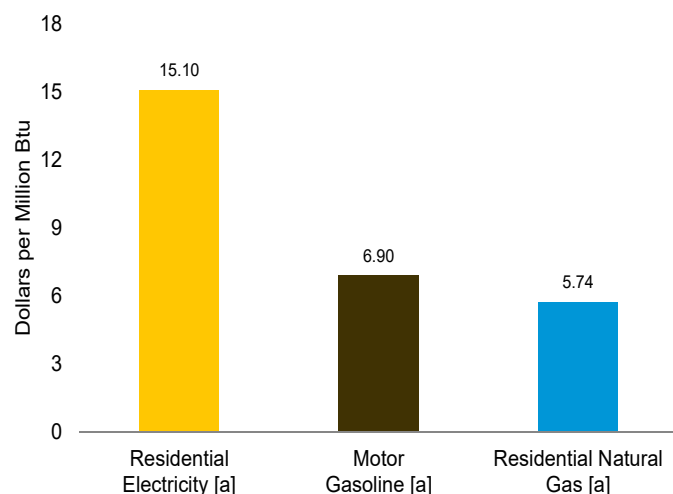
Sources: See end of section.

**Figure 1.6 Cost of Fuels to End Users In Real (1982-1984) Dollars**

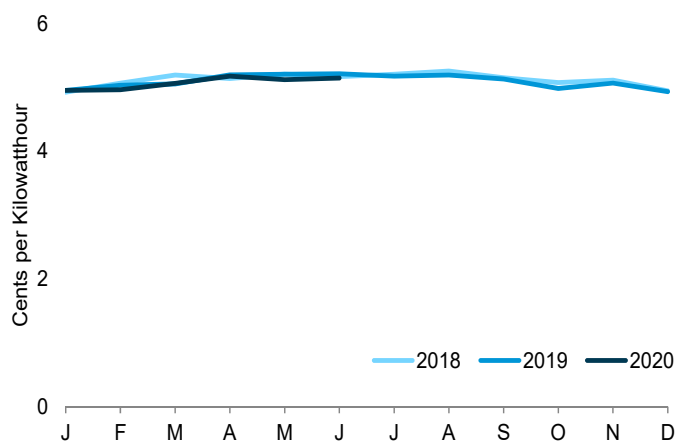
Costs, 1960–2019



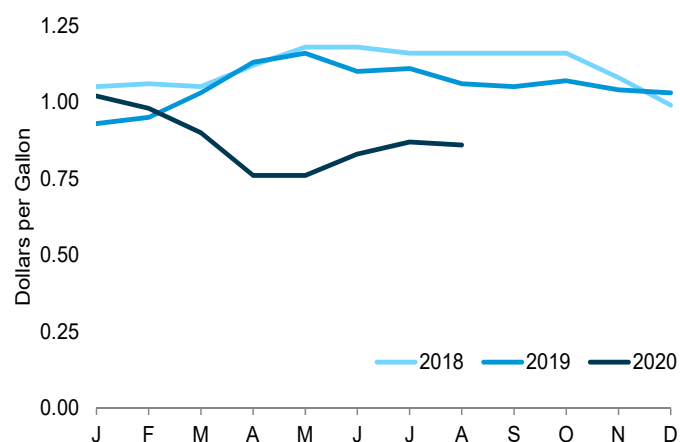
Costs, June 2020



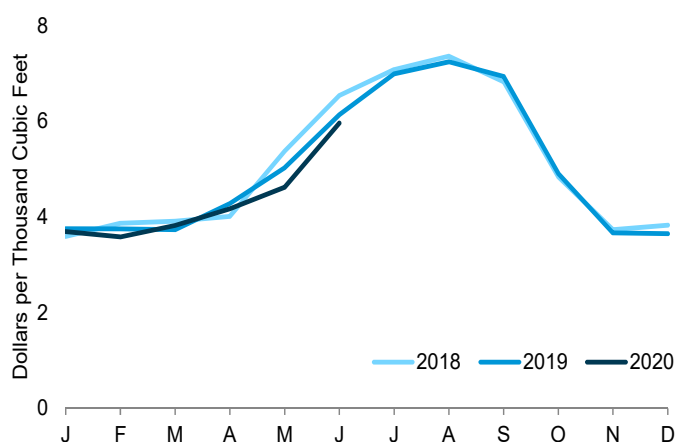
Residential Electricity, [a] Monthly



Motor Gasoline, [a] Monthly



Residential Natural Gas, [a] Monthly



[a] Includes Taxes.

[b] Excludes Taxes.

Note: See "Real Dollars" in Glossary.

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

Source: Tables 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 Kilowatthour	Dollars per Million Btu
<b>1960 Average</b> .....	<b>29.6</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>8.8</b>	<b>25.74</b>
<b>1965 Average</b> .....	<b>31.5</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>7.6</b>	<b>22.33</b>
<b>1970 Average</b> .....	<b>38.8</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>2.81</b>	<b>2.72</b>	<b>5.7</b>	<b>16.62</b>
<b>1975 Average</b> .....	<b>53.8</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>3.18</b>	<b>3.12</b>	<b>6.5</b>	<b>19.07</b>
<b>1980 Average</b> .....	<b>82.4</b>	<b>1.482</b>	<b>11.85</b>	<b>1.182</b>	<b>8.52</b>	<b>4.47</b>	<b>4.36</b>	<b>6.6</b>	<b>19.21</b>
<b>1985 Average</b> .....	<b>107.6</b>	<b>1.112</b>	<b>8.89</b>	<b>0.979</b>	<b>7.06</b>	<b>5.69</b>	<b>5.52</b>	<b>6.87</b>	<b>20.13</b>
<b>1990 Average</b> .....	<b>130.7</b>	<b>0.931</b>	<b>7.44</b>	<b>0.813</b>	<b>5.86</b>	<b>4.44</b>	<b>4.31</b>	<b>5.99</b>	<b>17.56</b>
<b>1995 Average</b> .....	<b>152.4</b>	<b>0.791</b>	<b>6.38</b>	<b>0.569</b>	<b>4.10</b>	<b>3.98</b>	<b>3.87</b>	<b>5.51</b>	<b>16.15</b>
<b>2000 Average</b> .....	<b>172.2</b>	<b>0.908</b>	<b>7.33</b>	<b>0.761</b>	<b>5.49</b>	<b>4.51</b>	<b>4.39</b>	<b>4.79</b>	<b>14.02</b>
<b>2001 Average</b> .....	<b>177.1</b>	<b>0.864</b>	<b>6.98</b>	<b>0.706</b>	<b>5.09</b>	<b>5.44</b>	<b>5.28</b>	<b>4.84</b>	<b>14.20</b>
<b>2002 Average</b> .....	<b>179.9</b>	<b>0.801</b>	<b>6.47</b>	<b>0.628</b>	<b>4.52</b>	<b>4.39</b>	<b>4.28</b>	<b>4.69</b>	<b>13.75</b>
<b>2003 Average</b> .....	<b>184.0</b>	<b>0.890</b>	<b>7.19</b>	<b>0.736</b>	<b>5.31</b>	<b>5.23</b>	<b>5.09</b>	<b>4.74</b>	<b>13.89</b>
<b>2004 Average</b> .....	<b>188.9</b>	<b>1.018</b>	<b>8.23</b>	<b>0.819</b>	<b>5.91</b>	<b>5.69</b>	<b>5.55</b>	<b>4.74</b>	<b>13.89</b>
<b>2005 Average</b> .....	<b>195.3</b>	<b>1.197</b>	<b>9.68</b>	<b>1.051</b>	<b>7.58</b>	<b>6.50</b>	<b>6.33</b>	<b>4.84</b>	<b>14.18</b>
<b>2006 Average</b> .....	<b>201.6</b>	<b>1.307</b>	<b>10.59</b>	<b>1.173</b>	<b>8.46</b>	<b>6.81</b>	<b>6.63</b>	<b>5.16</b>	<b>15.12</b>
<b>2007 Average</b> .....	<b>207.342</b>	<b>1.374</b>	<b>11.22</b>	<b>1.250</b>	<b>9.01</b>	<b>6.31</b>	<b>6.14</b>	<b>5.14</b>	<b>15.05</b>
<b>2008 Average</b> .....	<b>215.303</b>	<b>1.541</b>	<b>12.67</b>	<b>1.495</b>	<b>10.78</b>	<b>6.45</b>	<b>6.28</b>	<b>5.23</b>	<b>15.33</b>
<b>2009 Average</b> .....	<b>214.537</b>	<b>1.119</b>	<b>9.23</b>	<b>1.112</b>	<b>8.02</b>	<b>5.66</b>	<b>5.52</b>	<b>5.37</b>	<b>15.72</b>
<b>2010 Average</b> .....	<b>218.056</b>	<b>1.301</b>	<b>10.78</b>	<b>1.283</b>	<b>9.25</b>	<b>5.22</b>	<b>5.11</b>	<b>5.29</b>	<b>15.51</b>
<b>2011 Average</b> .....	<b>224.939</b>	<b>1.590</b>	<b>13.19</b>	<b>NA</b>	<b>NA</b>	<b>4.90</b>	<b>4.80</b>	<b>5.21</b>	<b>15.27</b>
<b>2012 Average</b> .....	<b>229.594</b>	<b>1.609</b>	<b>13.35</b>	<b>NA</b>	<b>NA</b>	<b>4.64</b>	<b>4.53</b>	<b>5.17</b>	<b>15.17</b>
<b>2013 Average</b> .....	<b>232.957</b>	<b>1.538</b>	<b>12.77</b>	<b>NA</b>	<b>NA</b>	<b>4.43</b>	<b>4.31</b>	<b>5.21</b>	<b>15.26</b>
<b>2014 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 Average</b> .....	<b>237.017</b>	<b>1.059</b>	<b>8.80</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 Average</b> .....	<b>240.007</b>	<b>0.918</b>	<b>7.63</b>	<b>NA</b>	<b>NA</b>	<b>4.19</b>	<b>4.03</b>	<b>5.23</b>	<b>15.33</b>
<b>2017 Average</b> .....	<b>245.120</b>	<b>1.007</b>	<b>8.37</b>	<b>NA</b>	<b>NA</b>	<b>4.45</b>	<b>4.29</b>	<b>5.26</b>	<b>15.41</b>
<b>2018 January</b> .....	<b>247.867</b>	<b>1.047</b>	<b>8.70</b>	<b>NA</b>	<b>NA</b>	<b>3.59</b>	<b>3.46</b>	<b>4.93</b>	<b>14.45</b>
<b>February</b> .....	<b>248.991</b>	<b>1.057</b>	<b>8.70</b>	<b>NA</b>	<b>NA</b>	<b>3.78</b>	<b>3.73</b>	<b>5.07</b>	<b>14.87</b>
<b>March</b> .....	<b>249.554</b>	<b>1.054</b>	<b>8.76</b>	<b>NA</b>	<b>NA</b>	<b>3.91</b>	<b>3.77</b>	<b>5.20</b>	<b>15.23</b>
<b>April</b> .....	<b>250.546</b>	<b>1.116</b>	<b>9.27</b>	<b>NA</b>	<b>NA</b>	<b>4.01</b>	<b>3.86</b>	<b>5.14</b>	<b>15.07</b>
<b>May</b> .....	<b>251.588</b>	<b>1.178</b>	<b>9.79</b>	<b>NA</b>	<b>NA</b>	<b>5.37</b>	<b>5.18</b>	<b>5.21</b>	<b>15.28</b>
<b>June</b> .....	<b>251.989</b>	<b>1.179</b>	<b>9.79</b>	<b>NA</b>	<b>NA</b>	<b>6.54</b>	<b>6.30</b>	<b>5.17</b>	<b>15.15</b>
<b>July</b> .....	<b>252.006</b>	<b>1.163</b>	<b>9.66</b>	<b>NA</b>	<b>NA</b>	<b>7.08</b>	<b>6.82</b>	<b>5.21</b>	<b>15.27</b>
<b>August</b> .....	<b>252.146</b>	<b>1.158</b>	<b>9.62</b>	<b>NA</b>	<b>NA</b>	<b>7.36</b>	<b>7.09</b>	<b>5.26</b>	<b>15.41</b>
<b>September</b> .....	<b>252.439</b>	<b>1.161</b>	<b>9.65</b>	<b>NA</b>	<b>NA</b>	<b>6.83</b>	<b>6.58</b>	<b>5.15</b>	<b>15.10</b>
<b>October</b> .....	<b>252.885</b>	<b>1.165</b>	<b>9.68</b>	<b>NA</b>	<b>NA</b>	<b>4.84</b>	<b>4.66</b>	<b>5.08</b>	<b>14.89</b>
<b>November</b> .....	<b>252.038</b>	<b>1.084</b>	<b>9.01</b>	<b>NA</b>	<b>NA</b>	<b>3.73</b>	<b>3.60</b>	<b>5.12</b>	<b>15.00</b>
<b>December</b> .....	<b>251.233</b>	<b>0.987</b>	<b>8.20</b>	<b>NA</b>	<b>NA</b>	<b>3.83</b>	<b>3.69</b>	<b>4.95</b>	<b>14.50</b>
<b>Average</b> .....	<b>251.107</b>	<b>1.113</b>	<b>9.25</b>	<b>NA</b>	<b>NA</b>	<b>4.18</b>	<b>4.03</b>	<b>5.13</b>	<b>15.02</b>
<b>2019 January</b> .....	<b>251.712</b>	<b>0.934</b>	<b>7.77</b>	<b>NA</b>	<b>NA</b>	<b>3.75</b>	<b>3.61</b>	<b>4.96</b>	<b>14.53</b>
<b>February</b> .....	<b>252.776</b>	<b>0.954</b>	<b>7.93</b>	<b>NA</b>	<b>NA</b>	<b>3.75</b>	<b>3.61</b>	<b>5.04</b>	<b>14.76</b>
<b>March</b> .....	<b>254.202</b>	<b>1.031</b>	<b>8.57</b>	<b>NA</b>	<b>NA</b>	<b>3.73</b>	<b>3.59</b>	<b>5.06</b>	<b>14.83</b>
<b>April</b> .....	<b>255.548</b>	<b>1.132</b>	<b>9.41</b>	<b>NA</b>	<b>NA</b>	<b>4.28</b>	<b>4.12</b>	<b>5.20</b>	<b>15.24</b>
<b>May</b> .....	<b>256.092</b>	<b>1.157</b>	<b>9.62</b>	<b>NA</b>	<b>NA</b>	<b>5.03</b>	<b>4.84</b>	<b>5.21</b>	<b>15.27</b>
<b>June</b> .....	<b>256.143</b>	<b>1.099</b>	<b>9.13</b>	<b>NA</b>	<b>NA</b>	<b>6.14</b>	<b>5.91</b>	<b>5.22</b>	<b>15.29</b>
<b>July</b> .....	<b>256.571</b>	<b>1.105</b>	<b>9.19</b>	<b>NA</b>	<b>NA</b>	<b>6.99</b>	<b>6.73</b>	<b>5.18</b>	<b>15.18</b>
<b>August</b> .....	<b>256.558</b>	<b>1.059</b>	<b>8.80</b>	<b>NA</b>	<b>NA</b>	<b>7.24</b>	<b>6.97</b>	<b>5.20</b>	<b>15.23</b>
<b>September</b> .....	<b>256.759</b>	<b>1.049</b>	<b>8.72</b>	<b>NA</b>	<b>NA</b>	<b>6.94</b>	<b>6.68</b>	<b>5.13</b>	<b>15.04</b>
<b>October</b> .....	<b>257.346</b>	<b>1.065</b>	<b>8.85</b>	<b>NA</b>	<b>NA</b>	<b>4.90</b>	<b>4.72</b>	<b>4.99</b>	<b>14.62</b>
<b>November</b> .....	<b>257.208</b>	<b>1.045</b>	<b>8.68</b>	<b>NA</b>	<b>NA</b>	<b>3.66</b>	<b>3.52</b>	<b>5.07</b>	<b>14.86</b>
<b>December</b> .....	<b>256.974</b>	<b>1.032</b>	<b>8.58</b>	<b>NA</b>	<b>NA</b>	<b>3.65</b>	<b>3.51</b>	<b>4.94</b>	<b>14.47</b>
<b>Average</b> .....	<b>255.657</b>	<b>1.055</b>	<b>8.77</b>	<b>NA</b>	<b>NA</b>	<b>4.15</b>	<b>3.99</b>	<b>5.10</b>	<b>14.95</b>
<b>2020 January</b> .....	<b>257.971</b>	<b>1.020</b>	<b>8.48</b>	<b>NA</b>	<b>NA</b>	<b>3.69</b>	<b>3.55</b>	<b>4.96</b>	<b>14.53</b>
<b>February</b> .....	<b>258.678</b>	<b>0.978</b>	<b>8.13</b>	<b>NA</b>	<b>NA</b>	<b>3.58</b>	<b>3.45</b>	<b>4.97</b>	<b>14.56</b>
<b>March</b> .....	<b>258.115</b>	<b>0.904</b>	<b>7.52</b>	<b>NA</b>	<b>NA</b>	<b>3.82</b>	<b>3.68</b>	<b>5.07</b>	<b>14.85</b>
<b>April</b> .....	<b>256.389</b>	<b>0.759</b>	<b>6.31</b>	<b>NA</b>	<b>NA</b>	<b>4.17</b>	<b>4.01</b>	<b>5.18</b>	<b>15.18</b>
<b>May</b> .....	<b>256.394</b>	<b>0.759</b>	<b>6.31</b>	<b>NA</b>	<b>NA</b>	<b>4.62</b>	<b>4.45</b>	<b>5.12</b>	<b>15.02</b>
<b>June</b> .....	<b>257.797</b>	<b>0.830</b>	<b>6.90</b>	<b>NA</b>	<b>NA</b>	<sup>R</sup> 5.96	<sup>R</sup> 5.74	<sup>R</sup> 5.15	<sup>R</sup> 15.10
<b>July</b> .....	<b>259.101</b>	<b>0.866</b>	<b>7.20</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>August</b> .....	<b>259.918</b>	<b>0.864</b>	<b>7.18</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

<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.

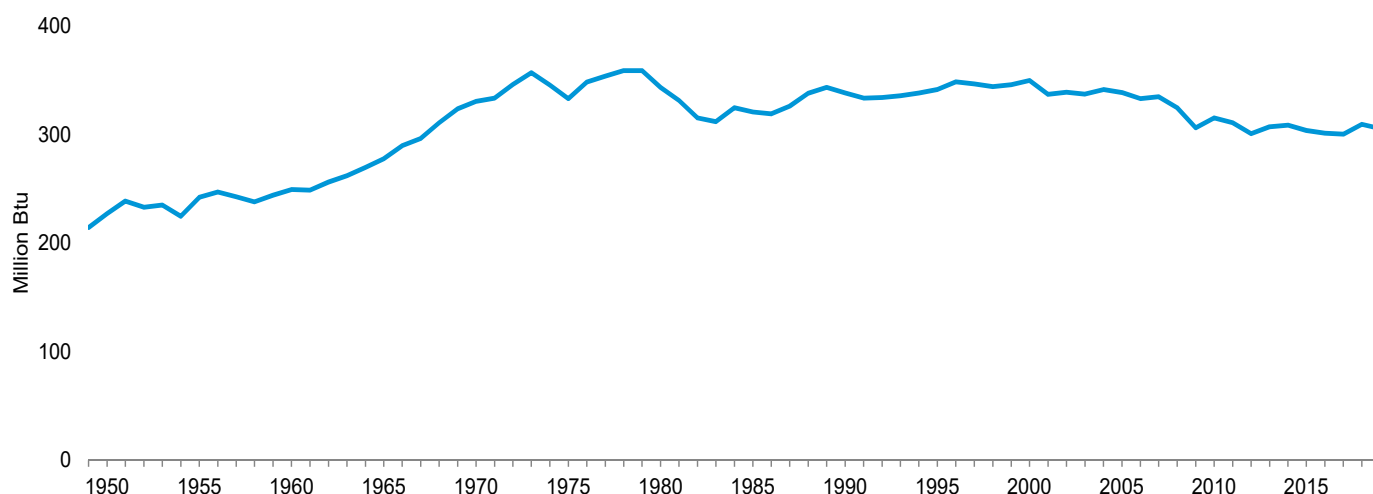
Notes: • See "Real Dollars" in Glossary. • Fuel costs are calculated by using the Urban Consumer Price Index (CPI) developed by the Bureau of Labor Statistics. • Annual averages may not equal average of months due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

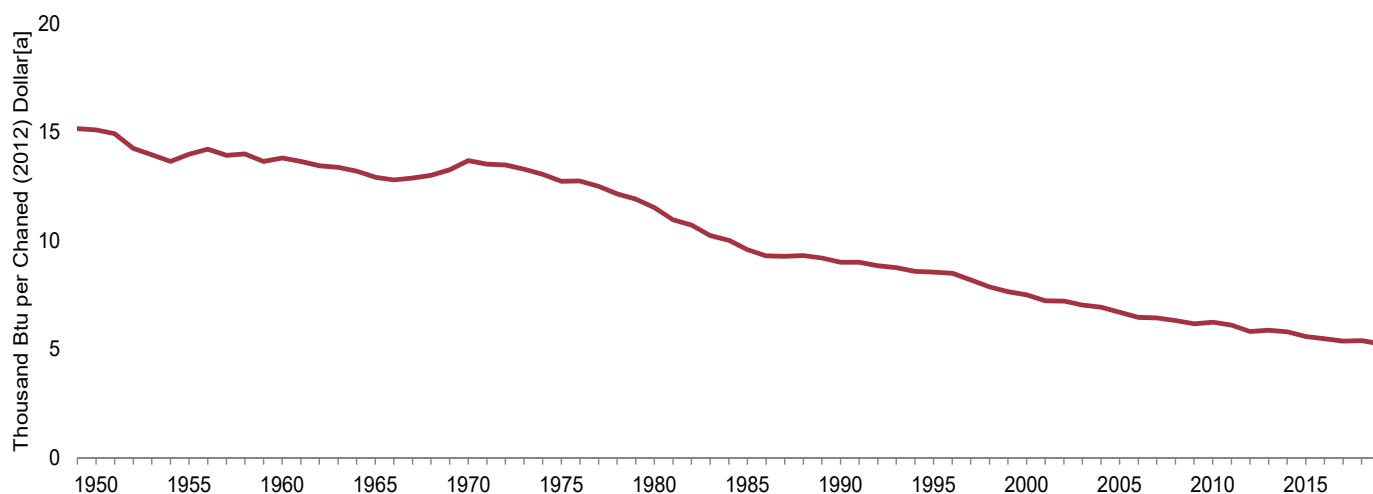
Sources: • **Fuel Prices:** Tables 9.4 (All Grades), 9.8, and 9.10, adjusted by the CPI; and *Monthly Energy Review*, September 2012, Table 9.8c. • **Consumer Price Index, All Urban Consumers:** U.S. Department of Labor, Bureau of Labor Statistics, series ID CUUR0000SA0. • **Conversion Factors:** Tables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

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

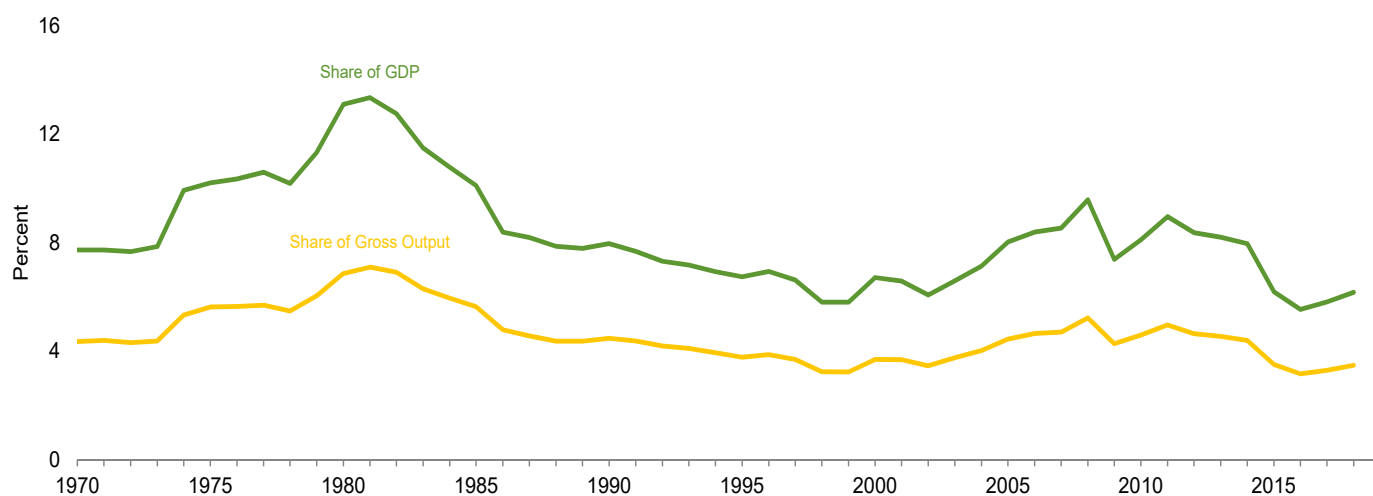
Energy Consumption per Capita, 1949–2019



Primary Energy Consumption per Real Dollar [a] of Gross Domestic Product, 1949–2019



Energy Expenditures as Share of Gross Domestic Product and Gross Output,[b] 1970–2018



[a] See “Chained Dollars” and “Real Dollars” in Glossary.

[b] Gross output is the value of gross domestic product (GDP) plus the value of intermediate inputs used to produce GDP.

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

Source: Table 1.7.

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

	Primary Energy Consumption <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 (2012) 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 (2012) Dollars <sup>d</sup>
1950 .....	34.599	227	15.11	NA	NA	NA	NA	2,382	15.6	1,040
1955 .....	40.178	242	13.99	NA	NA	NA	NA	2,685	16.2	935
1960 .....	45.041	249	13.82	NA	NA	NA	NA	2,914	16.1	894
1965 .....	53.953	278	12.94	NA	NA	NA	NA	3,462	17.8	830
1970 .....	67.817	331	13.70	82,875	404	7.7	4.4	4,261	20.8	861
1975 .....	71.931	333	12.74	171,854	796	10.2	5.6	4,426	20.5	784
1980 .....	78.021	343	11.54	374,350	1,647	13.1	6.9	4,750	20.9	703
1981 .....	76.057	331	10.97	427,901	1,865	13.3	7.1	4,627	20.2	668
1982 .....	73.046	315	10.73	426,482	1,841	12.8	6.9	4,394	19.0	646
1983 .....	72.915	312	10.24	417,622	1,786	11.5	6.3	4,371	18.7	614
1984 .....	76.571	325	10.03	435,313	1,846	10.8	6.0	4,596	19.5	602
1985 .....	76.334	321	9.60	438,343	1,842	10.1	5.6	4,587	19.3	577
1986 .....	76.599	319	9.31	384,091	1,599	8.4	4.8	4,598	19.1	559
1987 .....	79.008	326	9.28	397,627	1,641	8.2	4.6	4,756	19.6	559
1988 .....	82.659	338	9.32	411,568	1,683	7.9	4.4	4,981	20.4	562
1989 .....	84.740	343	9.22	439,051	1,779	7.8	4.4	5,068	20.5	551
1990 .....	84.433	338	9.02	474,652	1,901	8.0	4.5	5,040	20.2	538
1991 .....	84.380	334	9.02	472,440	1,867	7.7	4.4	4,995	19.7	534
1992 .....	85.725	334	8.85	476,845	1,859	7.3	4.2	5,095	19.9	526
1993 .....	87.266	336	8.77	492,275	1,894	7.2	4.1	5,186	20.0	521
1994 .....	88.983	338	8.60	504,856	1,919	6.9	3.9	5,264	20.0	508
1995 .....	90.931	341	8.55	514,624	1,933	6.7	3.8	5,323	20.0	501
1996 .....	93.935	349	8.52	560,293	2,080	6.9	3.9	5,512	20.5	500
1997 .....	94.507	347	8.20	567,962	2,083	6.6	3.7	5,583	20.5	485
1998 .....	94.920	344	7.88	526,283	1,908	5.8	3.2	5,631	20.4	468
1999 .....	96.545	346	7.66	558,627	2,002	5.8	3.2	5,693	20.4	451
2000 .....	98.702	350	7.52	687,711	2,437	6.7	3.7	5,867	20.8	447
2001 .....	96.064	337	7.24	696,242	2,443	6.6	3.7	5,765	20.2	435
2002 .....	97.535	339	7.23	663,964	2,308	6.1	3.5	5,809	20.2	431
2003 .....	97.835	337	7.05	755,070	2,603	6.6	3.7	5,860	20.2	422
2004 .....	100.002	342	6.94	871,210	2,975	7.1	4.0	5,979	20.4	415
2005 .....	100.102	339	6.71	1,045,730	3,539	8.0	4.4	5,999	20.3	402
2006 .....	99.392	333	6.48	1,158,821	3,884	8.4	4.6	5,914	19.8	386
2007 .....	100.893	335	6.46	1,233,869	4,096	8.5	4.7	6,003	19.9	384
2008 .....	98.754	325	6.33	1,408,759	4,633	9.6	5.2	5,817	19.1	373
2009 .....	93.942	306	6.18	1,066,293	3,476	7.4	4.3	5,392	17.6	355
2010 .....	<sup>R</sup> 97.513	315	6.25	1,214,045	3,925	8.1	4.6	5,585	18.1	358
2011 .....	<sup>R</sup> 96.863	311	6.11	1,391,711	4,467	9.0	5.0	5,446	17.5	344
2012 .....	<sup>R</sup> 94.374	301	5.83	1,355,033	4,318	8.4	4.6	5,229	16.7	323
2013 .....	97.117	307	5.89	1,376,142	4,355	8.2	4.5	5,356	16.9	325
2014 .....	98.276	309	5.81	1,394,926	4,382	8.0	4.4	5,413	17.0	320
2015 .....	<sup>R</sup> 97.375	304	5.59	1,128,068	3,518	6.2	3.5	5,263	16.4	302
2016 .....	<sup>R</sup> 97.335	301	5.49	1,038,272	3,215	5.5	3.2	<sup>R</sup> 5,171	16.0	292
2017 .....	<sup>R</sup> 97.595	300	5.38	1,136,189	3,496	5.8	3.3	5,131	15.8	283
2018 .....	<sup>R</sup> 101.096	309	5.41	1,271,064	3,891	6.2	3.5	5,281	16.2	283
2019 .....	<sup>R</sup> 100.314	<sup>R</sup> 306	5.25	NA	NA	NA	NA	<sup>R</sup> 5,142	<sup>R</sup> 15.7	269

<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 11.1.

<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. Through 1996, data have been adjusted by EIA based on DOC/BEA's 2012 comprehensive revision.

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

<sup>R</sup>=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 (2012) dollars (see Table C1).

• **Expenditures:** U.S. Energy Information Administration, "State Energy Price and Expenditure Estimates, 1970 Through 2018" (June 2020), U.S. Table ET.1.

• **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).

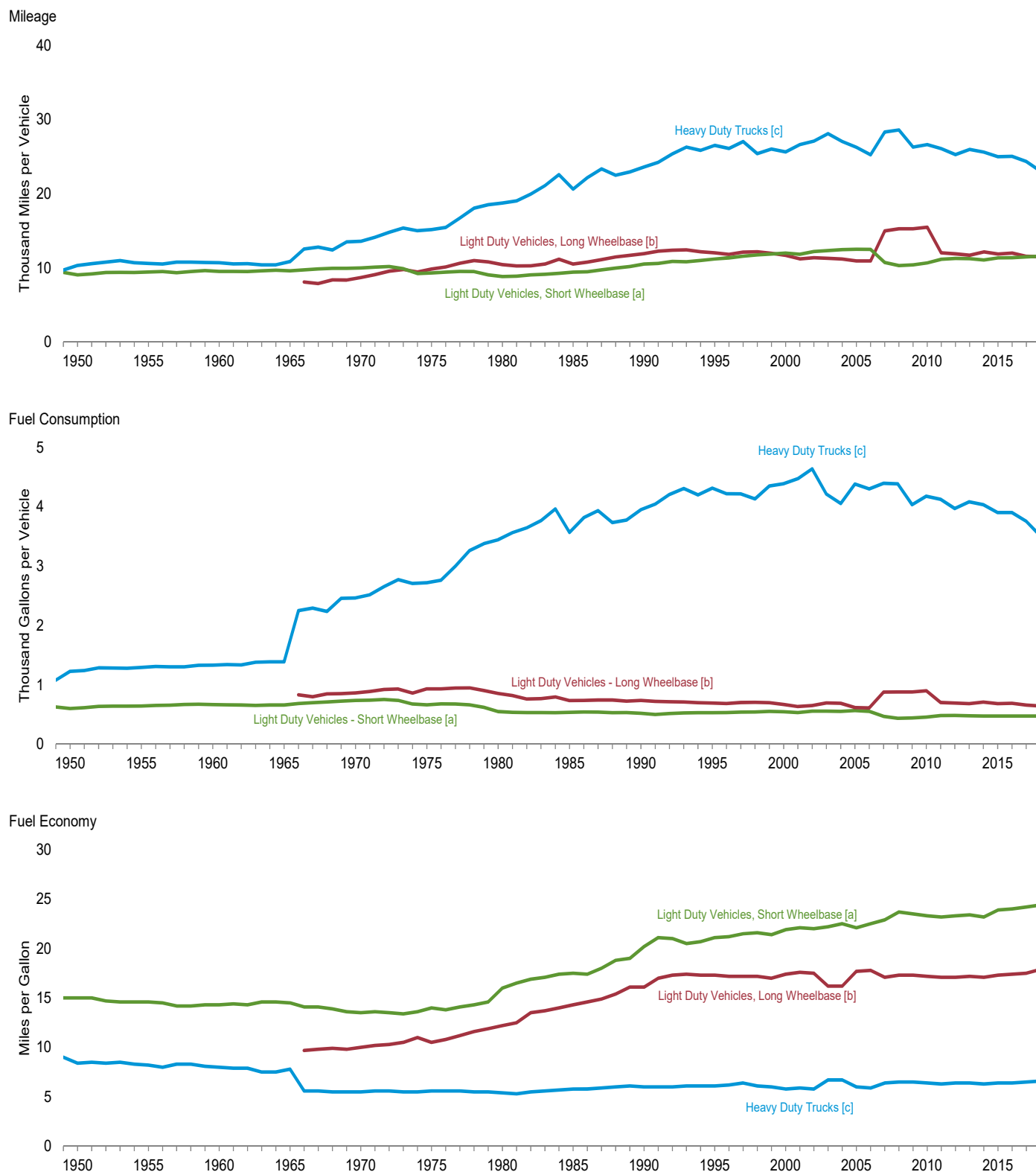
• **Expenditures as Share of Gross Output:** Calculated as energy expenditures divided by U.S. gross output (see Table C1).

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

• **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 (2012) dollars (see Table C1).

**Figure 1.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Economy, 1949-2018**



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

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

[c] For 1949–1965, data are for single-unit trucks with 2 axles and 6 or more

tires, combination trucks, and other vehicles with 2 axles and 4 tires that are not passenger cars. For 1966–2006 data are for single-unit truck 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 .....	11,327	475	23.9	11,855	684	17.3	24,979	3,904	6.4	11,742	656	17.9
2016 .....	11,370	475	24.0	11,991	689	17.4	25,037	3,904	6.4	11,810	658	17.9
2017 .....	11,467	474	24.2	11,543	659	17.5	24,335	3,758	6.5	11,789	653	18.1
2018 .....	11,576	475	24.4	11,486	643	17.9	23,037	3,507	6.6	11,843	651	18.2

<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."

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 Total</b> .....	6,675	6,203	7,194	7,304	2,951	3,932	2,422	4,744	2,774	4,550
<b>2015 Total</b> .....	6,521	5,777	6,165	6,088	2,487	3,222	2,087	4,602	2,898	4,087
<b>2016 Total</b> .....	5,929	5,353	5,701	5,786	2,456	3,094	1,752	4,619	3,031	3,878
<b>2017 Total</b> .....	6,038	5,333	5,684	5,997	2,232	2,835	1,582	4,568	3,187	3,828
<b>2018 January</b> .....	1,257	1,216	1,308	1,373	700	929	660	770	458	896
February .....	869	813	980	1,178	307	410	348	747	496	625
March .....	926	913	922	869	435	474	186	604	487	609
April .....	674	618	703	716	205	312	142	380	299	410
May .....	168	108	99	89	12	13	0	163	176	85
June .....	61	29	24	23	1	0	0	56	65	26
July .....	2	1	4	11	0	0	0	9	8	4
August .....	3	2	8	20	0	0	0	25	14	7
September .....	65	34	48	90	2	3	3	89	62	38
October .....	457	355	420	494	99	138	70	384	187	254
November .....	818	766	913	1,003	380	566	372	678	354	594
December .....	1,026	929	1,003	1,103	488	634	472	897	564	732
<b>Total</b> .....	<b>6,326</b>	<b>5,784</b>	<b>6,433</b>	<b>6,968</b>	<b>2,627</b>	<b>3,478</b>	<b>2,252</b>	<b>4,803</b>	<b>3,169</b>	<b>4,279</b>
<b>2019 January</b> .....	<sup>R</sup> 1,221	1,153	1,302	1,360	582	<sup>R</sup> 748	<sup>R</sup> 548	<sup>R</sup> 894	<sup>R</sup> 543	859
February .....	1,029	942	1,063	<sup>R</sup> 1,284	377	459	<sup>R</sup> 357	<sup>R</sup> 866	<sup>R</sup> 655	719
March .....	<sup>R</sup> 975	<sup>R</sup> 890	961	<sup>R</sup> 1,001	<sup>R</sup> 376	504	<sup>R</sup> 306	<sup>R</sup> 668	<sup>R</sup> 490	<sup>R</sup> 631
April .....	<sup>R</sup> 525	<sup>R</sup> 413	<sup>R</sup> 476	<sup>R</sup> 454	109	165	<sup>R</sup> 80	375	<sup>R</sup> 275	288
May .....	<sup>R</sup> 311	188	236	272	<sup>R</sup> 16	25	11	314	<sup>R</sup> 241	158
June .....	54	32	49	45	2	3	0	97	59	34
July .....	2	1	1	8	0	0	0	15	19	5
August .....	16	<sup>R</sup> 9	<sup>R</sup> 21	32	0	0	0	17	12	10
September .....	118	<sup>R</sup> 58	42	67	2	1	0	95	64	41
October .....	<sup>R</sup> 387	303	390	525	77	<sup>R</sup> 129	<sup>R</sup> 84	<sup>R</sup> 477	<sup>R</sup> 237	<sup>R</sup> 253
November .....	<sup>R</sup> 828	<sup>R</sup> 788	<sup>R</sup> 912	925	<sup>R</sup> 392	573	<sup>R</sup> 347	<sup>R</sup> 618	371	589
December .....	<sup>R</sup> 1,058	<sup>R</sup> 971	975	1,097	450	<sup>R</sup> 573	<sup>R</sup> 420	872	<sup>R</sup> 575	<sup>R</sup> 715
<b>Total</b> .....	<b><sup>R</sup> 6,523</b>	<b><sup>R</sup> 5,749</b>	<b><sup>R</sup> 6,427</b>	<b><sup>R</sup> 7,070</b>	<b>2,382</b>	<b><sup>R</sup> 3,179</b>	<b>2,153</b>	<b><sup>R</sup> 5,307</b>	<b>3,540</b>	<b>4,304</b>
<b>2020 January</b> .....	<sup>R</sup> 1,031	<sup>R</sup> 958	<sup>R</sup> 1,052	1,224	<sup>R</sup> 481	<sup>R</sup> 634	<sup>R</sup> 432	<sup>R</sup> 850	563	739
February .....	922	843	1,001	1,071	396	555	<sup>R</sup> 403	765	<sup>R</sup> 448	652
March .....	<sup>R</sup> 776	<sup>R</sup> 670	<sup>R</sup> 734	<sup>R</sup> 745	<sup>R</sup> 231	293	140	<sup>R</sup> 602	<sup>R</sup> 526	484
April .....	<sup>R</sup> 654	566	566	<sup>R</sup> 534	<sup>R</sup> 176	<sup>R</sup> 248	90	<sup>R</sup> 414	<sup>R</sup> 308	358
May .....	<sup>R</sup> 287	<sup>R</sup> 250	256	<sup>R</sup> 245	<sup>R</sup> 73	<sup>R</sup> 87	<sup>R</sup> 13	<sup>R</sup> 185	<sup>R</sup> 147	156
June .....	27	18	23	21	2	3	0	74	70	26
<b>6-Month Total</b> .....	<b>3,698</b>	<b>3,304</b>	<b>3,632</b>	<b>3,838</b>	<b>1,359</b>	<b>1,820</b>	<b>1,078</b>	<b>2,891</b>	<b>2,062</b>	<b>2,416</b>
<b>2019 6-Month Total</b> .....	<b>4,115</b>	<b>3,619</b>	<b>4,086</b>	<b>4,417</b>	<b>1,461</b>	<b>1,904</b>	<b>1,302</b>	<b>3,214</b>	<b>2,262</b>	<b>2,690</b>
<b>2018 6-Month Total</b> .....	<b>3,955</b>	<b>3,697</b>	<b>4,037</b>	<b>4,247</b>	<b>1,659</b>	<b>2,138</b>	<b>1,336</b>	<b>2,721</b>	<b>1,980</b>	<b>2,652</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.

<sup>R</sup>=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.

Sources: 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 Total</b> .....	420	596	610	814	2,009	1,493	2,474	1,431	1,068	1,299
<b>2015 Total</b> .....	555	804	729	942	2,405	1,718	2,741	1,478	1,068	1,488
<b>2016 Total</b> .....	626	888	958	1,073	2,412	1,957	2,882	1,497	928	1,559
<b>2017 Total</b> .....	450	661	709	911	2,254	1,585	2,718	1,548	1,053	1,428
<b>2018 January</b> .....	0	0	0	0	21	1	4	4	15	8
<b>February</b> .....	0	0	0	0	81	22	33	3	8	23
<b>March</b> .....	0	0	0	2	35	15	87	14	9	21
<b>April</b> .....	0	0	0	0	79	7	58	70	25	33
<b>May</b> .....	25	65	140	168	265	268	395	137	39	174
<b>June</b> .....	57	111	192	272	385	376	550	299	117	270
<b>July</b> .....	254	287	257	304	441	430	607	415	320	376
<b>August</b> .....	266	297	257	258	439	392	565	344	257	351
<b>September</b> .....	64	121	122	124	391	338	392	238	142	231
<b>October</b> .....	0	4	4	6	176	77	142	45	46	70
<b>November</b> .....	0	0	0	0	66	1	13	5	16	18
<b>December</b> .....	0	0	0	0	40	2	9	0	9	11
<b>Total</b> .....	667	885	972	1,134	2,418	1,928	2,856	1,573	1,002	1,585
<b>2019 January</b> .....	0	0	0	0	30	5	R 11	0	8	9
<b>February</b> .....	0	0	0	0	67	14	24	0	5	18
<b>March</b> .....	0	0	0	0	57	10	R 36	10	8	R 18
<b>April</b> .....	0	0	1	6	R 101	31	90	52	26	42
<b>May</b> .....	3	R 31	R 47	42	R 293	R 218	R 291	57	R 23	R 129
<b>June</b> .....	R 65	R 113	R 127	R 175	R 361	R 299	R 436	233	R 116	227
<b>July</b> .....	R 275	326	R 320	R 321	R 480	R 426	R 545	394	R 209	373
<b>August</b> .....	166	218	R 194	225	R 441	R 406	R 623	385	R 247	R 336
<b>September</b> .....	28	R 88	R 135	183	R 375	R 382	R 522	R 206	R 133	243
<b>October</b> .....	0	8	7	2	204	R 80	R 138	49	41	R 75
<b>November</b> .....	0	0	0	0	54	1	16	10	16	16
<b>December</b> .....	0	0	0	0	R 50	5	13	0	10	14
<b>Total</b> .....	537	R 784	R 832	R 954	R 2,513	R 1,880	R 2,745	R 1,397	R 844	R 1,500
<b>2020 January</b> .....	0	0	0	0	47	13	29	0	9	15
<b>February</b> .....	0	0	0	0	R 47	4	13	2	8	13
<b>March</b> .....	0	0	2	6	R 102	R 55	131	7	8	R 42
<b>April</b> .....	0	0	0	1	109	R 20	104	43	20	43
<b>May</b> .....	3	11	32	R 37	166	105	R 276	R 162	R 65	R 105
<b>June</b> .....	101	148	188	257	345	298	455	262	112	248
<b>6-Month Total</b> .....	105	159	221	302	816	495	1,007	477	222	466
<b>2019 6-Month Total</b> .....	68	145	175	223	909	578	888	352	188	444
<b>2018 6-Month Total</b> .....	83	176	332	442	865	688	1,129	526	213	529

<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.

Sources: 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 1.11a Non-Combustion Use of Fossil Fuels in Physical Units

			Petroleum								Total
	Coal	Natural Gas	Asphalt and Road Oil	Hydrocarbon Gas Liquids <sup>a</sup>	Lubricants	Petrochemical Feedstocks <sup>b</sup>	Petroleum Coke	Special Naphthas	Other <sup>c</sup>		
	Thousand Short Tons	Billion Cubic Feet	Thousand Barrels per Day								
1973 Total .....	3,523	898	522	684	162	356	56	88	88	1,956	
1975 Total .....	3,105	761	419	654	137	320	54	75	122	1,781	
1980 Total .....	2,612	759	396	890	159	692	52	100	143	2,433	
1985 Total .....	1,536	642	425	982	145	395	58	83	95	2,184	
1990 Total .....	758	675	483	1,071	164	546	72	56	85	2,477	
1995 Total .....	921	868	486	1,357	156	590	62	37	70	2,758	
1996 Total .....	884	896	484	1,413	151	592	65	39	70	2,813	
1997 Total .....	842	909	505	1,447	160	686	62	38	72	2,970	
1998 Total .....	656	938	521	1,441	168	690	97	56	83	3,056	
1999 Total .....	654	906	547	1,578	169	651	106	76	77	3,204	
2000 Total .....	674	918	525	1,543	166	662	90	51	78	3,115	
2001 Total .....	607	839	519	1,386	153	586	97	41	83	2,864	
2002 Total .....	937	836	512	1,474	151	628	86	53	85	2,989	
2003 Total .....	961	808	503	1,397	140	676	84	42	80	2,923	
2004 Total .....	938	818	537	1,458	141	784	95	27	74	3,117	
2005 Total .....	929	761	546	1,369	141	729	91	33	75	2,983	
2006 Total .....	562	573	521	1,424	137	726	126	37	86	3,057	
2007 Total .....	556	587	494	1,444	142	664	123	41	82	2,989	
2008 Total .....	541	597	417	1,279	131	574	117	44	85	2,648	
2009 Total .....	375	513	360	1,401	118	507	108	24	85	2,604	
2010 Total .....	719	654	362	1,597	131	539	36	14	89	2,767	
2011 Total .....	730	680	355	1,639	125	520	34	12	91	2,775	
2012 Total .....	707	706	340	1,747	114	444	37	8	88	2,778	
2013 Total .....	732	721	323	1,870	121	448	34	52	93	2,943	
2014 Total .....	562	725	327	1,780	126	410	10	55	97	2,807	
2015 Total .....	520	703	343	1,918	138	378	10	52	99	2,938	
2016 Total .....	435	727	351	1,943	130	371	10	49	100	2,955	
2017 Total .....	463	746	351	2,023	121	394	9	52	103	3,053	
2018 January .....	39	73	158	2,384	105	351	10	56	101	3,165	
February .....	34	66	203	2,184	135	352	5	52	101	3,032	
March .....	39	70	278	2,236	132	377	9	53	99	3,185	
April .....	41	65	225	2,166	122	400	9	57	105	3,084	
May .....	42	62	385	2,152	103	383	10	54	105	3,192	
June .....	39	60	476	2,221	131	401	10	45	106	3,390	
July .....	42	61	460	2,404	128	414	9	49	105	3,569	
August .....	42	61	507	2,450	134	432	13	39	105	3,681	
September .....	42	60	385	2,398	99	407	12	45	104	3,450	
October .....	41	63	410	2,334	107	427	13	48	95	3,435	
November .....	41	68	247	2,403	118	376	8	37	106	3,295	
December .....	43	72	182	2,362	91	389	8	41	106	3,179	
Total .....	484	780	327	2,309	117	393	10	48	103	3,307	
2019 January .....	40	75	195	2,562	114	354	8	39	103	3,376	
February .....	37	68	201	2,522	105	344	3	48	94	3,316	
March .....	41	71	232	2,257	97	323	9	42	93	3,054	
April .....	38	63	318	2,276	156	357	7	55	91	3,260	
May .....	43	63	369	2,231	107	345	10	48	89	3,200	
June .....	42	58	413	2,288	104	355	13	51	90	3,315	
July .....	40	59	510	2,451	129	348	12	63	98	3,612	
August .....	39	62	507	2,380	115	386	10	51	97	3,546	
September .....	39	59	480	2,505	96	365	8	51	91	3,596	
October .....	39	63	438	2,480	130	285	8	53	89	3,484	
November .....	36	68	310	2,482	105	338	11	49	92	3,388	
December .....	39	73	198	2,494	94	387	12	47	97	3,328	
Total .....	473	783	348	2,410	113	349	9	50	94	3,373	
2020 January .....	38	74	191	2,457	123	367	7	46	101	3,294	
February .....	38	69	191	2,317	108	292	8	52	97	3,064	
March .....	37	67	204	2,507	62	325	7	47	95	3,247	
April .....	36	60	292	2,257	82	315	5	55	86	3,092	
May .....	40	57	365	2,373	83	299	6	38	79	3,244	
June .....	40	55	511	2,350	104	291	6	47	83	3,392	
6-Month Total .....	229	381	292	2,378	94	315	7	47	90	3,224	
2019 6-Month Total .....	241	398	289	2,354	114	346	8	47	93	3,252	
2018 6-Month Total .....	233	396	288	2,225	121	377	9	53	103	3,176	

<sup>a</sup> Ethane, propane, normal butane, isobutane, natural gasoline, and refinery olefins (ethylene, propylene, butylene, and isobutylene).

<sup>b</sup> Includes still gas not burned as refinery fuel.

<sup>c</sup> Distillate fuel oil, residual fuel oil, waxes, and miscellaneous products.

R=Revised.

Notes: • Data are estimates. • Non-combustion use estimates are included in total energy consumption. See Table 1.3. • Non-combustion estimates are all for industrial sector consumption, except for some lubricants consumed by the

transportation sector. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia. • See Note 2, "Non-Combustion Use of Fossil Fuels," at end of section.

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

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

**Table 1.11b Heat Content of Non-Combustion Use of Fossil Fuels**  
(Quadrillion Btu)

	Coal	Natural Gas	Petroleum								Total	Percent of Total Energy Consumption
			Asphalt and Road Oil	Hydro-carbon Gas Liquids <sup>a</sup>	Lubri-cants	Petro-chemical Feed-stocks <sup>b</sup>	Petro-leum Coke	Special Naphthas	Other <sup>c</sup>	Total		
1973 Total .....	0.113	0.916	1.264	0.872	0.359	0.726	0.117	0.169	0.185	3.691	4.720	6.2
1975 Total .....	.099	.777	1.014	.822	.304	.652	.113	.144	.256	3.306	4.182	5.8
1980 Total .....	.084	.777	.962	1.128	.354	1.426	.108	.193	.303	4.473	5.334	6.8
1985 Total .....	.049	.662	1.029	1.194	.322	.817	.120	.159	.201	3.843	4.554	6.0
1990 Total .....	.024	.695	1.170	1.345	.362	1.123	.150	.107	.179	4.437	5.156	6.1
1995 Total .....	.029	.892	1.178	1.716	.346	1.214	.129	.071	.145	4.799	5.720	6.3
1996 Total .....	.028	.921	1.176	1.779	.335	1.209	.136	.075	.146	4.855	5.804	6.2
1997 Total .....	.027	.933	1.224	1.821	.354	1.400	.130	.072	.150	5.151	6.111	6.5
1998 Total .....	.021	.969	1.263	1.819	.371	1.403	.203	.107	.174	5.339	6.329	6.7
1999 Total .....	.021	.932	1.324	1.989	.375	1.329	.221	.145	.161	5.545	6.498	6.7
2000 Total .....	.022	.942	1.276	1.928	.369	1.344	.188	.097	.164	5.367	6.330	6.4
2001 Total .....	.019	.863	1.257	1.725	.338	1.192	.203	.078	.174	4.968	5.850	6.1
2002 Total .....	.030	.856	1.240	1.831	.334	1.272	.180	.102	.178	5.138	6.025	6.2
2003 Total .....	.031	.832	1.220	1.748	.309	1.371	.176	.080	.169	5.074	5.936	6.1
2004 Total .....	.030	.840	1.304	1.820	.313	1.592	.199	.051	.156	5.436	6.305	6.3
2005 Total .....	.030	.782	1.323	1.701	.312	1.474	.190	.063	.157	5.220	6.031	6.0
2006 Total .....	.018	.589	1.261	1.754	.303	1.477	.264	.070	.180	5.310	5.917	6.0
2007 Total .....	.018	.603	1.197	1.768	.313	1.351	.256	.078	.173	5.136	5.757	5.7
2008 Total .....	.017	.613	1.012	1.564	.291	1.172	.245	.085	.180	4.550	5.180	5.2
2009 Total .....	.012	.526	.873	1.676	.262	1.031	.226	.046	.179	4.293	4.831	5.1
2010 Total .....	.023	.669	.878	R 1.931	.291	1.096	.074	.026	.188	R 4.483	R 5.175	5.3
2011 Total .....	.023	.695	.859	R 1.947	.276	1.057	.070	.023	.193	R 4.425	R 5.144	5.3
2012 Total .....	.023	.724	.827	R 2.109	.254	.901	.077	.015	.187	R 4.369	R 5.115	5.4
2013 Total .....	.023	.741	.783	R 2.270	.268	.901	.070	.100	.197	R 4.589	R 5.354	5.5
2014 Total .....	.018	.749	.793	R 2.125	.280	.827	.021	.106	.205	R 4.358	R 5.125	5.2
2015 Total .....	.017	.730	.832	R 2.317	.305	.760	.022	.099	.208	R 4.542	R 5.289	5.4
2016 Total .....	.014	.755	.853	R 2.330	.289	.754	.021	.094	.212	R 4.553	R 5.323	5.5
2017 Total .....	.015	.774	.849	R 2.393	.267	.797	.020	.100	.217	R 4.643	R 5.432	5.6
<b>2018</b> January .....	.001	.076	.032	R .238	.020	.060	.002	.009	.018	R .380	R .457	4.7
February .....	.001	.068	.038	R .199	.023	.054	.001	.008	.016	R .339	R .408	R 5.1
March .....	.001	.072	.057	R .218	.025	.065	.002	.009	.018	R .393	R .466	5.4
April .....	.001	.068	.045	.204	.022	.067	.002	.009	.018	.366	.435	5.5
May .....	.001	.065	.079	.213	.019	.066	.002	.009	.019	.407	.473	5.9
June .....	.001	.062	.095	R .213	.024	.067	.002	.007	.018	R .426	R .489	6.0
July .....	.001	.063	.095	R .240	.024	.071	.002	.008	.019	R .458	R .523	6.1
August .....	.001	.063	.104	.246	.025	.074	.002	.006	.019	R .477	.542	6.2
September .....	.001	.062	.077	.233	.018	.067	.002	.007	.018	.422	.486	6.2
October .....	.001	.066	.084	R .235	.020	.073	.002	.008	.017	R .440	R .507	R 6.3
November .....	.001	.071	.049	R .233	.021	.062	.001	.006	.018	R .392	R .464	R 5.5
December .....	.001	.074	.037	R .236	.017	.067	.001	.007	.019	R .385	R .460	5.1
<b>Total</b> .....	<b>.015</b>	<b>.810</b>	<b>.793</b>	R <b>2.708</b>	<b>.259</b>	<b>.794</b>	<b>.020</b>	<b>.092</b>	<b>.218</b>	<b>R 4.884</b>	<b>R 5.709</b>	<b>5.6</b>
<b>2019</b> January .....	.001	.078	R .040	R .257	.021	R .061	.001	.006	R .019	R .405	R .485	5.1
February .....	.001	.070	R .037	R .226	R .018	R .053	(s)	R .007	.015	R .357	R .428	5.1
March .....	.001	.073	R .048	R .221	R .018	R .055	.002	R .007	R .017	R .367	R .442	5.1
April .....	.001	.065	.063	.215	R .028	R .059	.001	R .009	.016	R .392	R .458	6.0
May .....	.001	.065	.076	R .221	R .020	R .059	.002	R .008	.016	.402	.468	5.9
June .....	.001	R .061	R .082	R .224	.019	R .059	.002	.008	.016	.410	R .472	6.0
July .....	.001	R .062	.105	R .249	R .024	R .060	.002	.010	R .018	R .468	R .531	R 6.2
August .....	.001	.064	.104	R .242	R .022	R .066	.002	.008	.017	R .461	R .527	R 6.2
September .....	.001	R .062	R .096	R .246	.018	R .060	.001	.008	.016	R .445	R .508	6.5
October .....	.001	.066	R .090	R .252	R .025	R .049	.001	.009	.016	R .442	R .510	R 6.4
November .....	.001	.071	R .062	R .240	.019	R .056	.002	.008	.016	R .402	R .475	R 5.7
December .....	.001	R .076	.041	R .248	.018	R .066	.002	.008	.017	R .399	R .476	R 5.3
<b>Total</b> .....	<b>.015</b>	<b>R .813</b>	<b>R .844</b>	<b>R 2.841</b>	<b>R .250</b>	<b>R .704</b>	<b>R .019</b>	<b>R .096</b>	<b>R .198</b>	<b>R 4.951</b>	<b>R 5.780</b>	<b>5.8</b>
<b>2020</b> January .....	.001	R .077	.039	R .239	.023	R .063	.001	.007	.018	R .391	R .469	R 5.2
February .....	.001	.071	.037	.207	.019	R .047	.001	.008	.016	R .336	R .408	4.9
March .....	.001	R .070	.042	R .247	.012	R .056	.001	.008	.017	R .382	R .453	5.8
April .....	.001	.062	.058	.210	.015	R .053	.001	.009	.015	R .360	R .423	6.5
May .....	.001	.059	.075	.233	.016	R .052	.001	.006	.014	R .397	R .457	6.7
June .....	.001	.057	.102	.222	.019	.048	.001	.007	.014	.413	.472	6.5
<b>6-Month Total</b> .....	<b>.007</b>	<b>.396</b>	<b>.353</b>	<b>1.357</b>	<b>.103</b>	<b>.318</b>	<b>.007</b>	<b>.045</b>	<b>.095</b>	<b>2.278</b>	<b>2.682</b>	<b>5.9</b>
<b>2018 6-Month Total</b> .....	<b>.008</b>	<b>.413</b>	<b>.347</b>	<b>1.364</b>	<b>.125</b>	<b>.346</b>	<b>.009</b>	<b>.045</b>	<b>.098</b>	<b>2.333</b>	<b>2.754</b>	<b>5.5</b>
<b>2017 6-Month Total</b> .....	<b>.007</b>	<b>.411</b>	<b>.346</b>	<b>1.285</b>	<b>.133</b>	<b>.379</b>	<b>.009</b>	<b>.050</b>	<b>.108</b>	<b>2.310</b>	<b>2.728</b>	<b>5.4</b>

<sup>a</sup> Ethane, propane, normal butane, isobutane, natural gasoline, and refinery olefins (ethylene, propylene, butylene, and isobutylene).

<sup>b</sup> Includes still gas not burned as refinery fuel.

<sup>c</sup> Distillate fuel oil, residual fuel oil, waxes, and miscellaneous products.

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

Notes: • Data are estimates. • Non-combustion use estimates are included in total energy consumption. See Table 1.3. • Non-combustion estimates are all for industrial sector consumption, except for some lubricants consumed by the transportation sector. • Totals may not equal sum of components due to

independent rounding. • Geographic coverage is the 50 states and the District of Columbia. • See Note 2, "Non-Combustion Use of Fossil Fuels," at end of section.

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

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

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

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

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

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

### *Coal*

The U.S. Energy Information Administration (EIA) assumes all non-combustion use of coal comes from the process of manufacturing coal coke in the industrial sector. Among the byproducts of the process are “coal tars” or “coal liquids,” which typically are rich in aromatic hydrocarbons, such as benzene, and are used as chemical feedstock. EIA estimates non-combustion use ratios of coal tar for 1973 forward. Prior to 1998, estimate ratios are based on coal tar production data from the United States International Trade Commission's *Synthetic Organic Chemicals*. For 1998 forward, coal tar production is estimated using chemicals industry coal, coke, and breeze nonfuel use data from EIA, Form EIA-846, “Manufacturing Energy Consumption Survey” (MECS). For Table 1.11b, coal tar values in Table 1.11a are multiplied by 32.0067 million Btu/short ton, which is the product of 4.95 barrels/short ton (the density of coal tar) and 6.466 million Btu/barrel (the approximate heat content of coal tar).

### *Natural Gas*

EIA assumes that all non-combustion use of natural gas takes place in the industrial sector. EIA estimates non-combustion ratios of natural gas using total natural gas nonfuel use data from MECS, and natural gas used as feedstock for hydrogen production data from EIA, Form EIA-820, “Annual Refinery Report.” For Table 1.11b, natural gas values in Table 1.11a are multiplied by the heat content factors for natural gas end-use sectors consumption shown in Table A4.

### *Asphalt and Road Oil*

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

### *Distillate Fuel Oil*

EIA assumes that all non-combustion use of distillate fuel oil occurs in the industrial sector. EIA estimates non-combustion ratios of distillate fuel oil using total distillate fuel oil nonfuel use data from MECS. Ratios prior to 1985 are assumed to be equal to the 1985 ratio. For Table 1.11b, distillate fuel oil values in Table 1.11a are multiplied by the heat content factors for distillate fuel oil consumption shown in Table A3 and the number of days in the period. Distillate fuel oil is included in "other" petroleum products.

### *Hydrocarbon Gas Liquids (HGL)*

EIA estimates non-combustion ratios of hydrocarbon gas liquids (HGL), which include ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). EIA assumes that 100% of ethane, ethylene, and propylene consumption is for non-combustion use; 85% of normal butane, butylene, isobutane, and isobutylene consumption is for non-combustion use; and 50% of natural gasoline consumption is for non-combustion use. Non-combustion use of propane in the industrial sector is estimated using data from the American Petroleum Institute (API), the Propane Education & Research Council (PERC), and EIA's *Petroleum Supply Annual* (PSA). For 1984 through 2009, propane non-combustion ratios are estimated using API propane and propylene chemical industry sales data. Propane non-combustion ratios prior to 1984 are assumed to be equal to the 1984 ratio. For 2010 through 2016, propane non-combustion ratios are estimated by subtracting API data for total odorized propane sales from PSA data for total propane product supplied. Beginning in 2017, propane non-combustion ratios are estimated by subtracting PERC data for total odorized propane sales from PSA data for total propane product supplied. For Table 1.11b, HGL component values are multiplied by the appropriate heat content factors in Table A1 and the number of days in the period.

### *Lubricants*

EIA assumes all lubricants consumption is for non-combustion use. For Table 1.11b, lubricants values in Table 1.11a are multiplied by 6.065 million Btu/barrel (the approximate heat content of lubricants) and the number of days in the period.

### *Petrochemical Feedstocks, Naphtha*

EIA assumes all naphtha for petrochemical feedstocks is for non-combustion use. For Table 1.11b, naphtha petrochemical feedstock values in 1.11a are multiplied by 5.248 million Btu/barrel (the approximate heat content of naphtha for petrochemical feedstocks) and the number of days in the period.

### *Petrochemical Feedstocks, Other Oils*

EIA assumes all other oils for petrochemical feedstocks are for non-combustion use. For Table 1.11b, other oils petrochemical feedstock values in 1.11a are multiplied by 5.825 million Btu/barrel (the approximate heat content of other oils for petrochemical feedstocks) and the number of days in the period.

### *Petrochemical Feedstocks, Still Gas*

EIA assumes all still gas not burned as refinery fuel or for pipeline gas supplies is for non-combustion use. EIA estimates non-combustion ratios of still gas by subtracting data for all known fuel uses (refinery fuel use from the PSA, and pipeline gas supplies from EIA's *Natural Gas Annual*) from the products supplied values in the PSA. The remainder is assumed to be dispatched to chemical plants as a feedstock for non-combustion use. For Table 1.11b, still gas for petrochemical feedstock values in 1.11a are multiplied by the still gas heat content factors (through 2015, the still gas heat content factor is 6.000 million Btu per fuel oil equivalent barrel; beginning in 2016, the still gas heat content factor is 6.287 million Btu per residual fuel oil equivalent barrel) and the number of days in the period.

### *Petroleum Coke*

EIA assumes all non-combustion use of petroleum coke occurs in the industrial sector. Examples include petroleum coke used in the production of chemicals and metals. EIA estimates non-combustion ratios of petroleum coke by subtracting data for all known fuel use by refineries from PSA and MECS data. Non-combustion ratios prior to 1988 are assumed to be equal to the 1988 ratio. For Table 1.11b, petroleum coke values in 1.11a are multiplied by 5.719 million Btu/barrel (the approximate heat content of marketable petroleum coke) and the number of days in the period.

### *Residual Fuel Oil*

EIA assumes that all non-combustion use of residual fuel oil occurs in the industrial sector. EIA estimates non-combustion ratios of residual fuel oil using total minus chemicals industry residual fuel oil nonfuel use data from MECS. Ratios prior to 1994 are assumed to be equal to the 1994 ratio. For Table 1.11b, residual fuel oil values in Table 1.11a are multiplied by 6.287 million Btu/barrel (the approximate heat content of residual fuel oil) and the number of days in the period. Residual fuel oil is included in "other" petroleum products.

### *Special Naphthas*

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

### *Waxes*

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

### *Miscellaneous Petroleum Products*

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

## **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.

2009–2011: 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 biodiesel consumption (calculated using biodiesel data from U.S. Energy Information Administration (EIA), 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” (the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1); minus other renewable diesel fuel and other renewables fuels consumption from Table 10.4.

2012 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 biodiesel consumption from Table 10.4; minus other renewable diesel fuel and other renewables fuels consumption from Table 10.4.

### *Coal Coke Net Imports*

1949 forward: Table 1.4c.

### *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: Table 1.4c.

### *Total Primary Energy Consumption*

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

## **Table 1.4a Sources**

### *Coal*

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

### *Coal Coke*

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

### *Natural Gas*

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

### *Crude Oil*

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

### *Petroleum Products*

1949–1992: Petroleum products (excluding biofuels) imports are equal to total petroleum imports from Table 3.3b minus crude oil imports from Table 3.3b; petroleum products (excluding biofuels) imports data are converted to Btu by multiplying by the total petroleum products imports heat content factors in Table A2.

1993–2008: Petroleum products (excluding biofuels) imports are equal to petroleum products (including biofuels) imports (see 1949–1992 sources above) minus fuel ethanol (minus denaturant) imports (see “Biomass—Fuel Ethanol (Minus Denaturant)” sources below).

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

### *Total Petroleum*

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

### *Biomass—Fuel Ethanol (Minus Denaturant)*

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



### *Biomass—Biodiesel*

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

### *Biomass—Other Renewable Fuels*

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

### *Total Biomass*

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

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

2009 forward: Total biomass imports are the sum of imports values for fuel ethanol (minus denaturant), biodiesel, and other renewable fuels.

### *Electricity*

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

### *Total Primary Energy Imports*

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

## **Table 1.4b Sources**

### *Coal*

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

### *Coal Coke*

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

### *Natural Gas*

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

### *Crude Oil*

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

### *Petroleum Products*

1949–2009: Petroleum products (excluding biofuels) exports are equal to total petroleum exports from Table 3.3b minus crude oil exports from Table 3.3b; petroleum products (excluding biofuels) exports data are converted to Btu by multiplying by the total petroleum products exports heat content factors in Table A2.

2010: Petroleum products (including biofuels) exports are equal to total petroleum exports from Table 3.3b minus crude oil exports from Table 3.3b; petroleum products (including biofuels) exports data are converted to Btu by multiplying by the total petroleum products exports heat content factors in Table A2. Petroleum products (excluding biofuels) exports are equal to petroleum products (including biofuels) exports minus fuel ethanol (minus denaturant) exports (see “Biomass—Fuel Ethanol (Minus Denaturant)” sources below).

2011 forward: Biomass-based diesel fuel exports data are from U.S. Energy Information Administration (EIA), Petroleum Supply Annual (PSA), Table 31, and Petroleum Supply Monthly (PSM), Table 49, and are converted to Btu by multiplying

by the biodiesel heat content factor in Table A1. Petroleum products (excluding biofuels) exports are equal to petroleum products (including biofuels) exports (see 2010 sources above) minus fuel ethanol (minus denaturant) exports (see “Biomass—Fuel Ethanol (Minus Denaturant)” sources below) minus biomass-based diesel fuel exports.

#### *Total Petroleum*

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

#### *Biomass—Fuel Ethanol (Minus Denaturant)*

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

#### *Biomass—Biodiesel*

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

#### *Biomass—Densified Biomass*

2016 forward: Densified biomass exports data are from EIA, Form EIA-63C, “Densified Biomass Fuel Report.”

#### *Total Biomass*

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

2010–2015: Total biomass exports are equal to fuel ethanol (minus denaturant) exports plus biodiesel exports.

2016 forward: Total biomass exports are the sum of the exports values for fuel ethanol (minus denaturant), biodiesel, and densified biomass.

#### *Electricity*

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

#### *Total Primary Energy Exports*

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

### **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.

1993–2016: “U.S. International Trade in Goods and Services,” Annual Revisions.

2017–2019: “U.S. International Trade in Goods and Services,” 2019 Annual Revisions.

2020: “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.

1994–2016: "U.S. International Trade in Goods and Services," Annual Revisions.

2017–2019: "U.S. International Trade in Goods and Services," 2019 Annual Revisions.

2020: "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.

1993–2016: "U.S. International Trade in Goods and Services," Annual Revisions.

2017–2019: "U.S. International Trade in Goods and Services," 2019 Annual Revisions.

2020: "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.

1992–2016: "U.S. International Trade in Goods and Services," Annual Revisions.

2017–2019: "U.S. International Trade in Goods and Services," 2019 Annual Revisions.

2020: "U.S. International Trade in Goods and Services," FT-900, monthly.

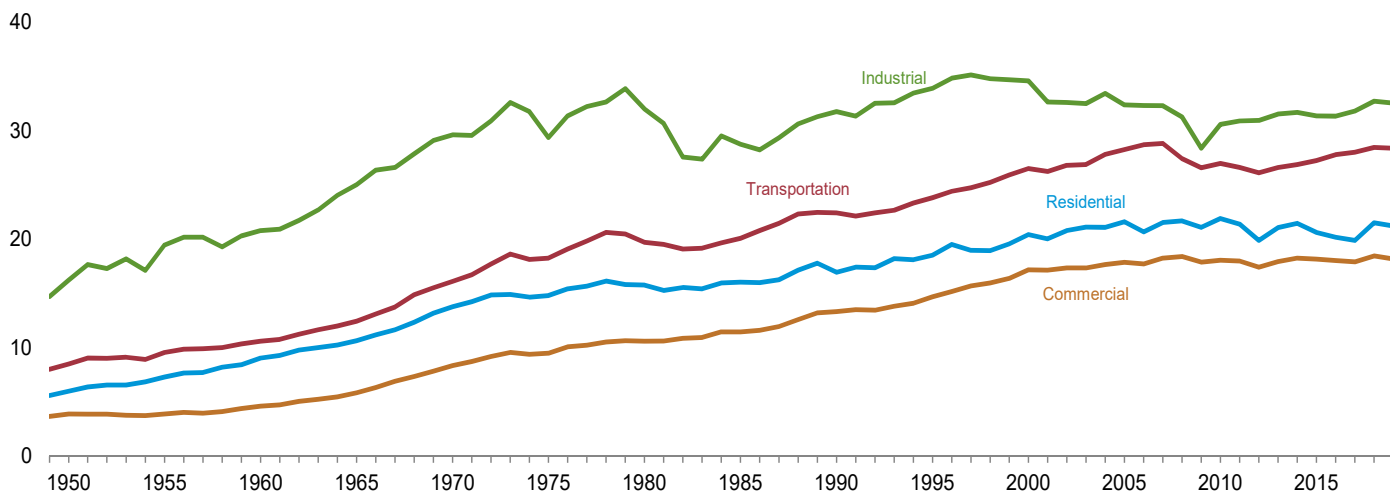
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## **2. Energy Consumption By Sector**

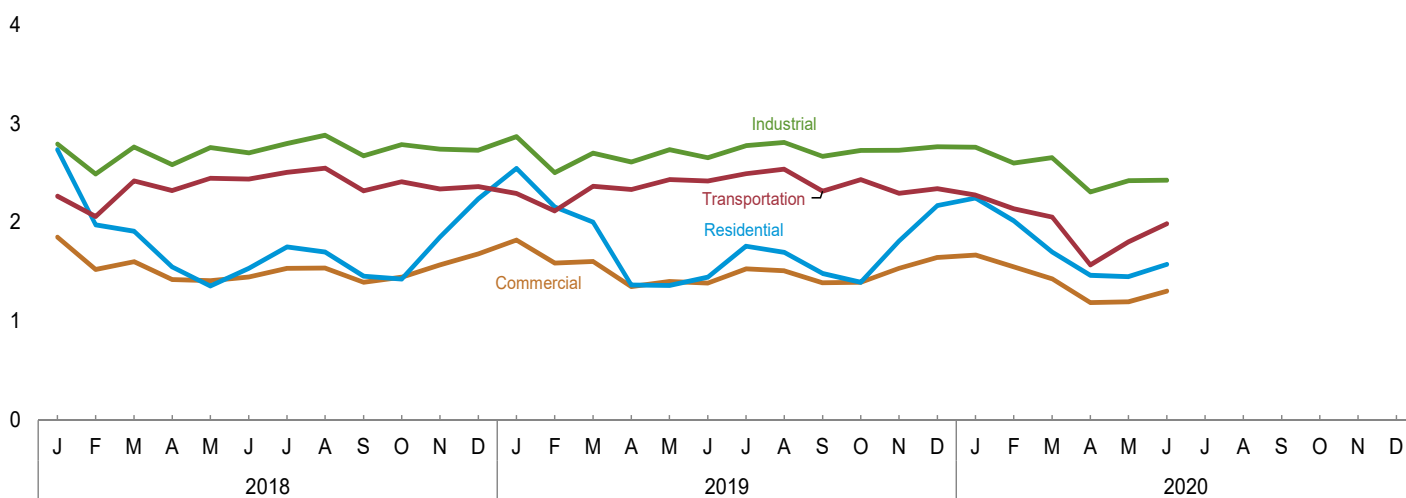
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**Figure 2.1 Energy Consumption by Sector**  
(Quadrillion Btu)

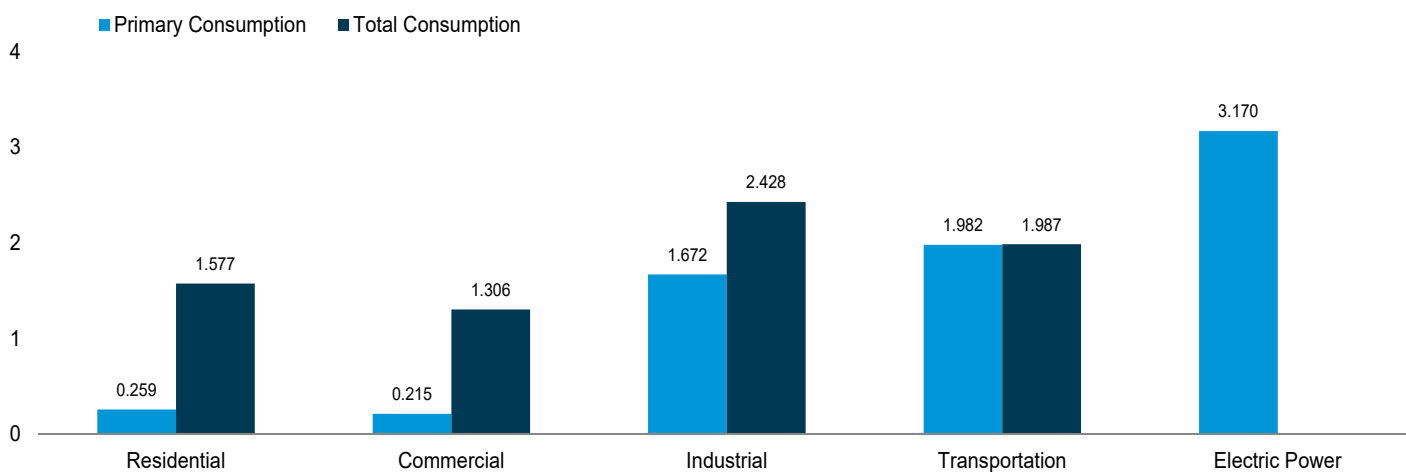
Total Consumption by End-Use Sector, 1949–2019



Total Consumption by End-Use Sector, Monthly



By Sector, June 2020



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>			
1950 Total .....	4,830	5,989	2,834	3,893	13,872	16,224	8,383	8,492	4,679	(s)	34,599
1955 Total .....	5,608	7,278	2,561	3,895	16,073	19,455	9,474	9,550	6,461	(s)	40,178
1960 Total .....	6,651	9,040	2,723	4,610	16,949	20,795	10,560	10,596	8,158	(s)	45,041
1965 Total .....	7,280	10,640	3,177	5,846	20,085	25,035	12,399	12,432	11,012	(s)	53,953
1970 Total .....	8,323	13,766	4,237	8,346	22,941	29,605	16,062	16,098	16,253	(s)	67,817
1975 Total .....	7,990	14,814	4,059	9,493	21,400	29,379	18,211	18,245	20,270	1	71,931
1980 Total .....	7,440	15,754	4,105	10,578	22,549	31,993	19,659	19,697	24,269	-1	78,021
1985 Total .....	7,149	16,042	3,732	11,451	19,384	28,757	20,042	20,088	26,032	-4	76,334
1990 Total .....	6,553	16,941	3,894	13,317	21,120	31,749	22,366	22,419	<sup>d</sup> 30,495	7	84,433
1995 Total .....	6,935	18,517	4,101	14,690	22,657	33,908	23,757	23,812	33,479	3	90,931
2000 Total .....	7,156	20,422	4,278	17,175	22,748	34,587	26,456	26,515	38,062	2	98,702
2001 Total .....	6,864	20,038	4,085	17,137	21,726	32,653	26,179	26,242	37,215	-6	96,064
2002 Total .....	6,907	20,786	4,132	17,346	21,727	32,590	26,747	26,808	38,016	5	97,535
2003 Total .....	7,233	21,120	4,298	17,346	21,469	32,489	26,807	26,881	38,028	-1	97,835
2004 Total .....	6,987	21,082	4,232	17,656	22,340	33,444	27,748	27,826	38,701	-6	100,002
2005 Total .....	6,901	21,613	4,052	17,854	21,343	32,374	28,179	28,261	39,626	(s)	100,102
2006 Total .....	6,155	20,671	3,748	17,707	21,455	32,317	28,618	28,697	39,417	(s)	99,392
2007 Total .....	6,589	21,520	3,923	18,253	21,284	32,306	28,727	28,815	40,371	-1	100,893
2008 Total .....	6,889	21,668	4,100	18,402	20,455	31,261	27,339	27,421	39,969	1	98,754
2009 Total .....	6,637	21,082	4,056	17,888	18,670	28,380	26,510	26,592	38,069	(s)	93,942
2010 Total .....	6,641	21,895	4,023	18,059	<sup>R</sup> 20,327	<sup>R</sup> 30,574	26,897	26,978	39,619	7	<sup>R</sup> 97,513
2011 Total .....	6,473	21,382	4,066	17,982	<sup>R</sup> 20,505	<sup>R</sup> 30,893	26,518	26,599	39,293	8	<sup>R</sup> 96,863
2012 Total .....	5,684	19,870	3,725	17,422	<sup>R</sup> 20,781	<sup>R</sup> 30,954	26,050	26,126	38,131	2	<sup>R</sup> 94,374
2013 Total .....	6,689	21,052	4,161	17,930	<sup>R</sup> 21,378	31,525	26,533	26,612	38,357	-1	97,117
2014 Total .....	7,006	21,446	4,390	18,265	<sup>R</sup> 21,455	31,691	26,789	26,869	38,629	6	98,276
2015 Total .....	6,465	20,618	4,441	18,157	<sup>R</sup> 21,417	<sup>R</sup> 31,361	27,161	27,238	37,890	1	<sup>R</sup> 97,375
2016 Total .....	6,028	20,176	4,321	18,030	<sup>R</sup> 21,554	<sup>R</sup> 31,347	27,710	27,786	37,727	-4	<sup>R</sup> 97,335
2017 Total .....	6,093	19,883	4,368	17,900	<sup>R</sup> 21,953	<sup>R</sup> 31,798	27,939	28,014	37,241	(s)	<sup>R</sup> 97,595
2018 January .....	1,247	2,737	704	1,853	<sup>R</sup> 1,994	<sup>R</sup> 2,794	2,260	2,267	3,446	2	<sup>R</sup> 9,653
February .....	886	1,978	540	1,526	<sup>R</sup> 1,765	<sup>R</sup> 2,491	2,054	2,060	2,811	-2	<sup>R</sup> 8,053
March .....	855	1,913	536	1,603	<sup>R</sup> 1,964	<sup>R</sup> 2,764	2,415	2,421	2,931	-4	<sup>R</sup> 8,697
April .....	610	1,549	407	1,423	<sup>R</sup> 1,809	2,586	2,318	2,324	2,737	-6	7,876
May .....	293	1,358	251	1,412	1,878	<sup>R</sup> 2,757	2,441	2,447	3,112	-2	7,972
June .....	229	1,536	224	1,451	<sup>R</sup> 1,844	<sup>R</sup> 2,705	2,432	2,438	3,402	2	<sup>R</sup> 8,133
July .....	215	1,753	219	1,536	<sup>R</sup> 1,903	<sup>R</sup> 2,798	2,500	2,507	3,756	5	<sup>R</sup> 8,598
August .....	205	1,702	223	1,538	1,983	2,881	2,545	2,551	3,717	5	<sup>R</sup> 8,676
September .....	221	1,457	226	1,396	1,853	<sup>R</sup> 2,675	2,315	2,321	3,234	1	7,850
October .....	410	1,429	341	1,447	<sup>R</sup> 1,975	<sup>R</sup> 2,787	2,405	2,411	2,944	-2	<sup>R</sup> 8,071
November .....	799	1,852	507	1,572	<sup>R</sup> 1,919	<sup>R</sup> 2,742	2,333	2,339	2,945	-2	<sup>R</sup> 8,502
December .....	1,005	2,239	601	1,683	<sup>R</sup> 1,927	<sup>R</sup> 2,731	2,357	2,363	3,127	-2	<sup>R</sup> 9,015
Total .....	6,974	21,501	4,777	18,441	<sup>R</sup> 22,814	<sup>R</sup> 32,710	28,375	28,451	38,163	-7	<sup>R</sup> 101,096
2019 January .....	<sup>R</sup> 1,204	2,546	699	1,823	<sup>R</sup> 2,078	<sup>R</sup> 2,868	<sup>R</sup> 2,285	<sup>R</sup> 2,292	3,262	1	<sup>R</sup> 9,530
February .....	1,023	2,159	598	1,590	<sup>R</sup> 1,795	<sup>R</sup> 2,504	<sup>R</sup> 2,109	<sup>R</sup> 2,116	2,844	-1	<sup>R</sup> 8,367
March .....	897	2,005	551	1,607	<sup>R</sup> 1,940	<sup>R</sup> 2,702	<sup>R</sup> 2,359	<sup>R</sup> 2,366	2,933	-3	8,677
April .....	<sup>R</sup> 480	1,368	346	1,353	<sup>R</sup> 1,858	<sup>R</sup> 2,613	<sup>R</sup> 2,327	<sup>R</sup> 2,333	2,654	-5	<sup>R</sup> 7,661
May .....	348	1,362	<sup>R</sup> 277	1,404	<sup>R</sup> 1,916	<sup>R</sup> 2,736	<sup>R</sup> 2,427	<sup>R</sup> 2,433	2,969	-3	<sup>R</sup> 7,933
June .....	246	1,448	228	1,388	<sup>R</sup> 1,845	<sup>R</sup> 2,655	<sup>R</sup> 2,413	<sup>R</sup> 2,419	3,179	(s)	<sup>R</sup> 7,911
July .....	231	1,761	228	1,531	<sup>R</sup> 1,917	<sup>R</sup> 2,777	<sup>R</sup> 2,488	<sup>R</sup> 2,494	3,699	6	<sup>R</sup> 8,569
August .....	230	1,699	234	1,512	<sup>R</sup> 1,960	<sup>R</sup> 2,808	<sup>R</sup> 2,531	<sup>R</sup> 2,538	3,602	5	<sup>R</sup> 8,561
September .....	221	<sup>R</sup> 1,484	223	1,391	<sup>R</sup> 1,883	<sup>R</sup> 2,670	<sup>R</sup> 2,309	<sup>R</sup> 2,316	3,224	2	<sup>R</sup> 7,862
October .....	374	1,395	311	1,396	<sup>R</sup> 1,970	<sup>R</sup> 2,728	<sup>R</sup> 2,427	<sup>R</sup> 2,433	2,870	-3	<sup>R</sup> 7,949
November .....	782	1,811	499	1,535	<sup>R</sup> 1,967	<sup>R</sup> 2,731	<sup>R</sup> 2,289	<sup>R</sup> 2,295	2,835	-2	<sup>R</sup> 8,370
December .....	980	<sup>R</sup> 2,172	588	1,648	<sup>R</sup> 2,013	<sup>R</sup> 2,765	<sup>R</sup> 2,335	<sup>R</sup> 2,342	3,011	-4	<sup>R</sup> 8,924
Total .....	<sup>R</sup> 7,016	<sup>R</sup> 21,209	<sup>R</sup> 4,783	<sup>R</sup> 18,179	<sup>R</sup> 23,140	<sup>R</sup> 32,557	<sup>R</sup> 28,300	<sup>R</sup> 28,376	37,082	-6	<sup>R</sup> 100,314
2020 January .....	1,038	2,247	619	1,671	2,004	2,760	2,270	2,277	3,025	-4	8,951
February .....	932	2,018	563	1,553	1,867	2,601	2,133	2,139	2,816	-6	8,306
March .....	707	1,702	447	1,432	<sup>R</sup> 1,913	2,654	2,050	2,056	2,727	-6	7,838
April .....	542	1,467	330	1,190	1,650	2,310	1,568	1,572	2,449	-8	<sup>R</sup> 6,532
May .....	<sup>R</sup> 392	<sup>R</sup> 1,453	<sup>R</sup> 258	<sup>R</sup> 1,198	<sup>R</sup> 1,705	<sup>R</sup> 2,422	<sup>R</sup> 1,798	<sup>R</sup> 1,803	2,723	-7	6,870
June .....	259	1,577	215	1,306	1,672	2,428	1,982	1,987	3,170	-2	7,296
6-Month Total .....	3,870	10,465	2,432	8,351	10,812	15,176	11,802	11,834	16,910	-33	45,793
2019 6-Month Total .....	4,198	10,887	2,699	9,165	11,431	16,078	13,921	13,959	17,840	-11	50,078
2018 6-Month Total .....	4,120	11,071	2,662	9,269	11,254	16,096	13,920	13,958	18,439	-10	50,384

<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.

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

Notes: • Data are estimates, except for the electric power sector. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 7.

• See Note 3, "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.

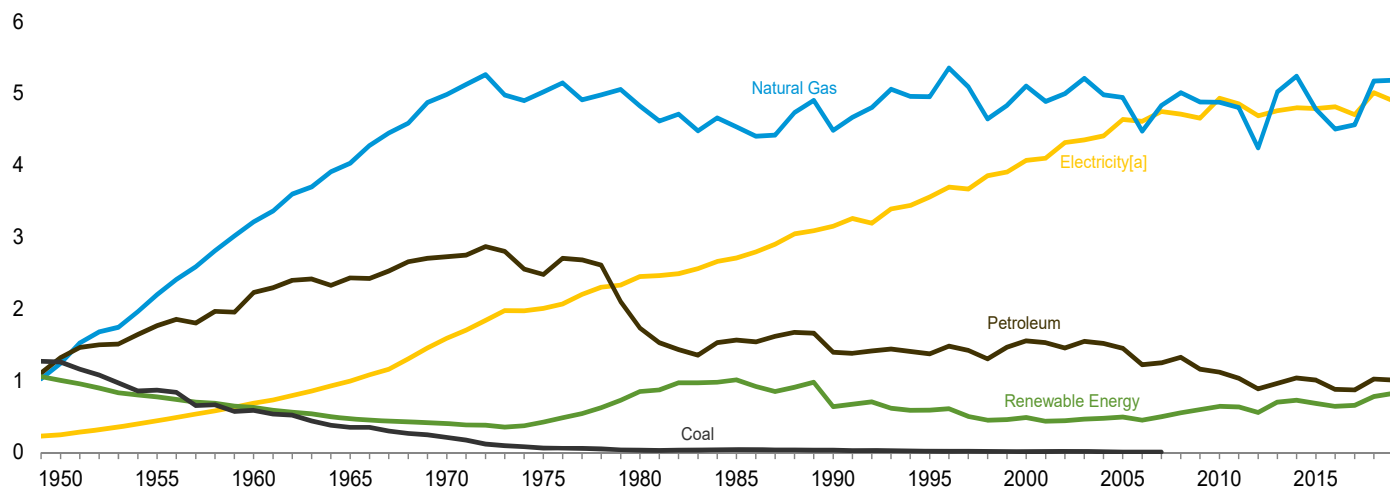
Sources: • **End-Use Sectors:** Tables 2.2–2.5. • **Electric Power Sector:** Table 2.6. • **Balancing Item:** Calculated as primary energy total consumption minus the sum of total energy consumption in the four end-use sectors.

• **Primary Total:** Table 1.3.

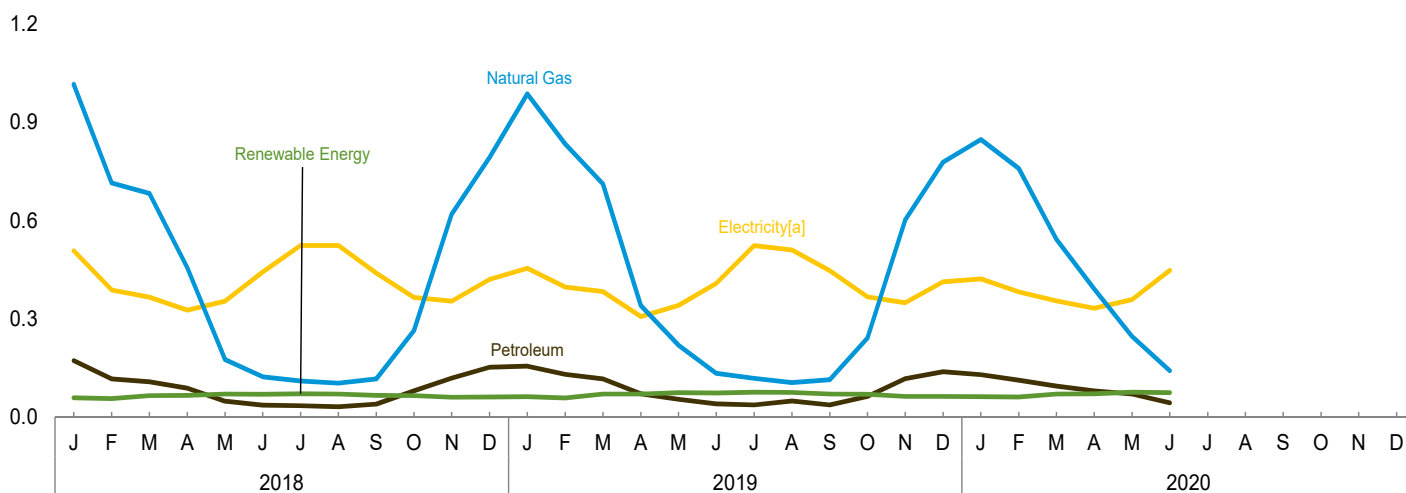
**Figure 2.2 Residential Sector Energy Consumption**

(Quadrillion Btu)

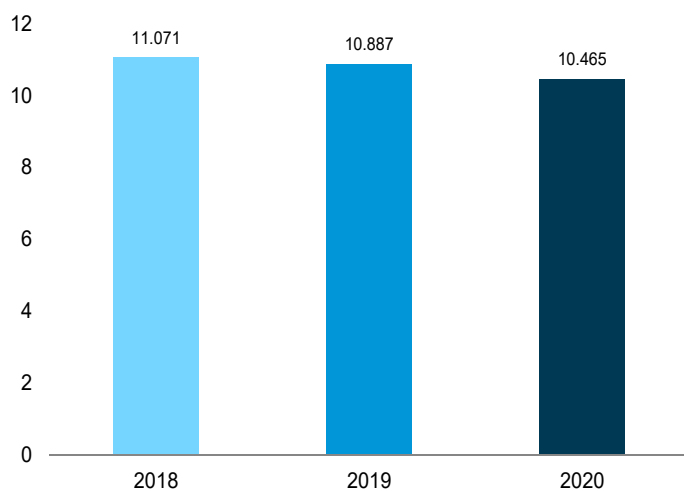
By Major Source, 1949–2019



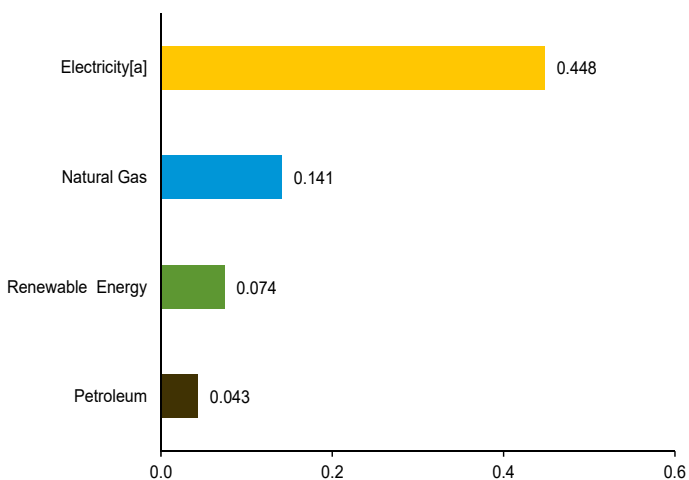
By Major Source, Monthly



Total, January–June



By Major Source, June 2020



[a] Electricity retail sales.

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

Source: Table 2.2.



**Table 2.2 Residential Sector Energy Consumption**  
(Trillion Btu)

	Primary Consumption <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	4,830	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	2,228	6,025	NA	NA	627	627	6,651	687	1,701	9,040
1965 Total .....	352	4,028	2,432	6,812	NA	NA	468	468	7,280	993	2,367	10,640
1970 Total .....	209	4,987	2,726	7,922	NA	NA	401	401	8,323	1,591	3,852	13,766
1975 Total .....	63	5,023	2,479	7,565	NA	NA	425	425	7,990	2,007	4,817	14,814
1980 Total .....	31	4,825	1,734	6,590	NA	NA	850	850	7,440	2,448	5,866	15,754
1985 Total .....	39	4,534	1,566	6,139	NA	NA	1,010	1,010	7,149	2,709	6,184	16,042
1990 Total .....	31	4,487	1,395	5,912	6	55	580	640	6,553	3,153	7,235	16,941
1995 Total .....	17	4,954	1,374	6,345	7	63	520	589	6,935	3,557	8,026	18,517
2000 Total .....	11	5,105	1,554	6,670	9	58	420	486	7,156	4,069	9,197	20,422
2001 Total .....	12	4,889	1,529	6,430	9	55	370	435	6,864	4,100	9,074	20,038
2002 Total .....	12	4,995	1,457	6,464	10	53	380	443	6,907	4,317	9,562	20,786
2003 Total .....	12	5,209	1,547	6,768	13	52	400	465	7,233	4,353	9,534	21,120
2004 Total .....	11	4,981	1,520	6,512	14	51	410	475	6,987	4,408	9,687	21,082
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	1,222	5,704	18	53	380	451	6,155	4,611	9,905	20,671
2007 Total .....	8	4,835	1,249	6,092	22	55	420	497	6,589	4,750	10,180	21,520
2008 Total .....	NA	5,010	1,325	6,335	26	58	470	555	6,889	4,711	10,068	21,668
2009 Total .....	NA	4,883	1,158	6,041	33	60	504	597	6,637	4,657	9,788	21,082
2010 Total .....	NA	4,878	1,120	5,999	37	65	541	642	6,641	4,933	10,321	21,895
2011 Total .....	NA	4,805	1,034	5,838	40	71	524	635	6,473	4,855	10,054	21,382
2012 Total .....	NA	4,242	886	5,128	40	79	438	557	5,684	4,690	9,496	19,870
2013 Total .....	NA	5,023	963	5,986	40	91	572	703	6,689	4,759	9,604	21,052
2014 Total .....	NA	5,242	1,036	6,279	40	110	579	728	7,006	4,801	9,638	21,446
2015 Total .....	NA	4,777	1,007	5,784	40	128	513	681	6,465	4,791	9,362	20,618
2016 Total .....	NA	4,506	878	5,384	40	162	442	643	6,028	4,815	9,334	20,176
2017 Total .....	NA	4,563	871	5,435	40	194	425	658	6,093	4,704	9,085	19,883
2018 January .....	NA	1,016	172	1,188	3	12	44	59	1,247	508	982	2,737
February .....	NA	715	116	830	3	13	40	56	886	388	704	1,978
March .....	NA	683	107	790	3	18	44	65	855	366	692	1,913
April .....	NA	456	88	544	3	21	43	66	610	326	613	1,549
May .....	NA	175	48	223	3	23	44	70	293	354	711	1,358
June .....	NA	123	36	160	3	23	43	69	229	443	864	1,536
July .....	NA	110	34	144	3	24	44	71	215	524	1,014	1,753
August .....	NA	103	31	135	3	23	44	70	205	524	973	1,702
September .....	NA	116	39	155	3	20	43	66	221	440	796	1,457
October .....	NA	264	80	344	3	18	44	65	410	365	654	1,429
November .....	NA	620	119	739	3	14	43	60	799	354	698	1,852
December .....	NA	793	152	945	3	13	44	61	1,005	420	814	2,239
Total .....	NA	5,173	1,022	6,195	40	221	517	778	6,974	5,013	9,515	21,501
2019 January .....	NA	987	155	1,143	3	14	45	62	<sup>R</sup> 1,204	454	887	2,546
February .....	NA	834	130	964	3	15	41	58	1,023	397	739	2,159
March .....	NA	712	116	<sup>R</sup> 827	3	21	45	70	897	383	725	2,005
April .....	NA	340	71	410	3	24	43	70	<sup>R</sup> 480	307	580	1,368
May .....	NA	219	54	273	3	26	45	74	348	341	674	1,362
June .....	NA	133	40	173	3	27	43	73	246	408	794	1,448
July .....	NA	118	37	155	3	28	45	76	231	523	1,007	1,761
August .....	NA	105	49	155	3	27	45	75	230	510	959	1,699
September .....	NA	114	37	151	3	24	43	70	221	447	815	<sup>R</sup> 1,484
October .....	NA	241	63	<sup>R</sup> 304	3	21	45	69	374	367	654	1,395
November .....	NA	602	<sup>R</sup> 117	719	3	16	43	63	782	349	680	1,811
December .....	NA	779	138	917	3	15	45	63	980	413	780	<sup>R</sup> 2,172
Total .....	NA	5,184	<sup>R</sup> 1,007	<sup>R</sup> 6,191	40	257	529	825	<sup>R</sup> 7,016	4,897	9,296	<sup>R</sup> 21,209
2020 January .....	NA	848	129	977	3	16	42	62	1,038	422	787	2,247
February .....	NA	759	112	871	3	18	39	61	932	382	704	2,018
March .....	NA	543	<sup>R</sup> 94	638	3	24	42	70	707	355	640	1,702
April .....	NA	391	80	471	3	27	41	71	542	332	593	1,467
May .....	NA	246	<sup>R</sup> 70	<sup>R</sup> 316	3	30	42	76	<sup>R</sup> 392	359	702	<sup>R</sup> 1,453
June .....	NA	141	43	184	3	30	41	74	259	448	870	1,577
6-Month Total .....	NA	2,929	528	3,457	20	146	248	413	3,870	2,299	4,296	10,465
2019 6-Month Total .....	NA	3,226	565	3,790	20	126	262	408	4,198	2,288	4,400	10,887
2018 6-Month Total .....	NA	3,168	566	3,735	20	109	257	386	4,120	2,385	4,566	11,071

<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>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.

<sup>R</sup>=Revised. NA=Not available.

Notes: • Data are estimates, except for electricity retail sales. • See Note 2, "Other Energy Losses," at end of section. • See Note 3, "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.

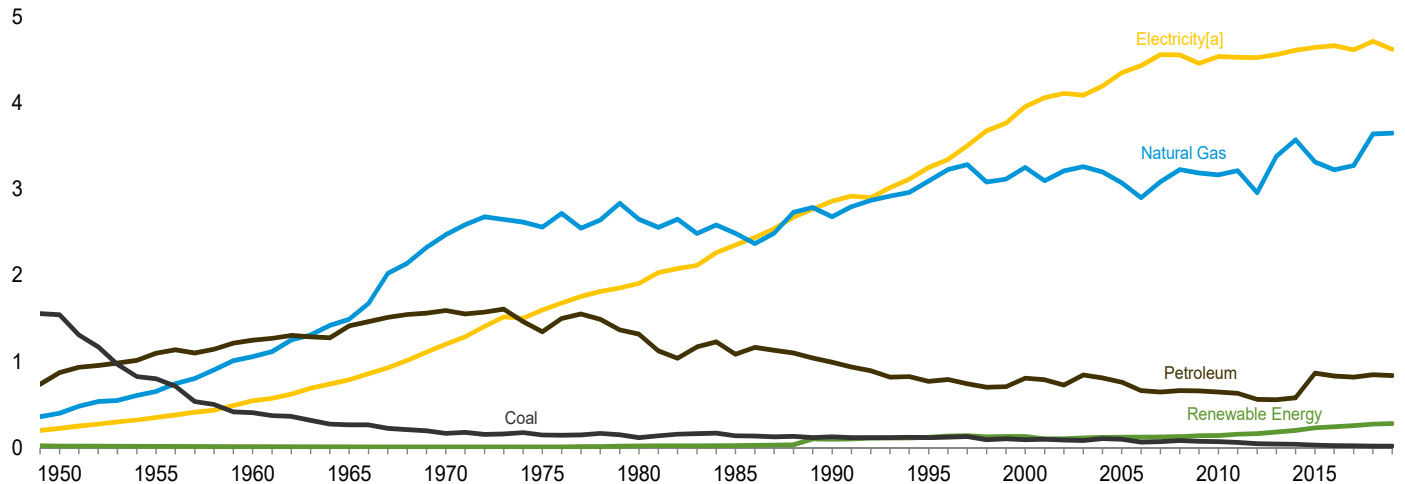
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#consumption> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

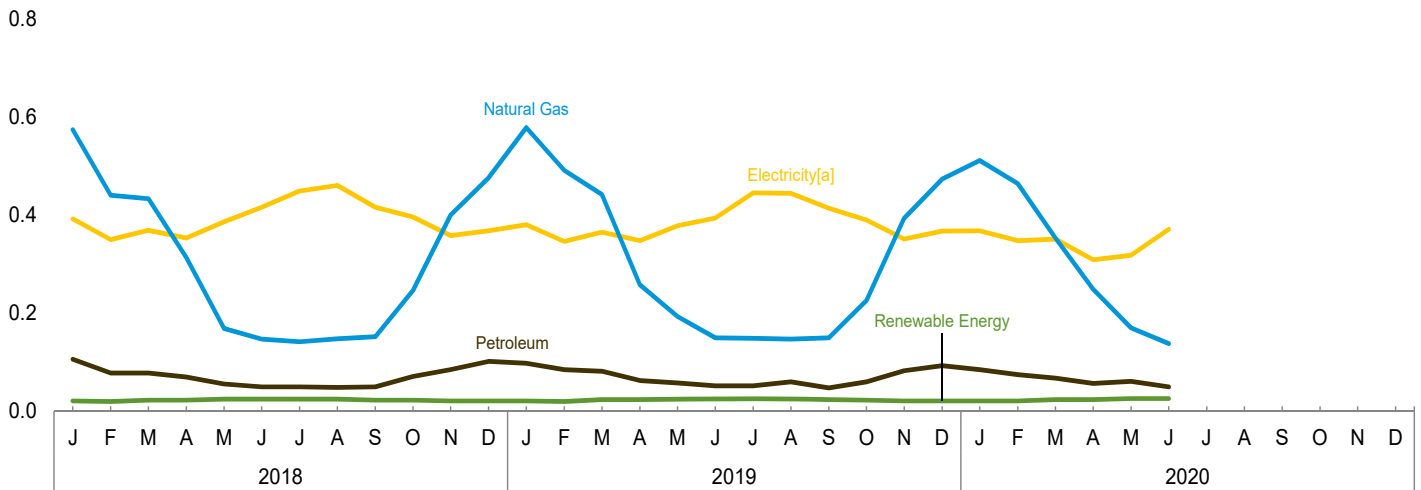
**Figure 2.3 Commercial Sector Energy Consumption**

(Quadrillion Btu)

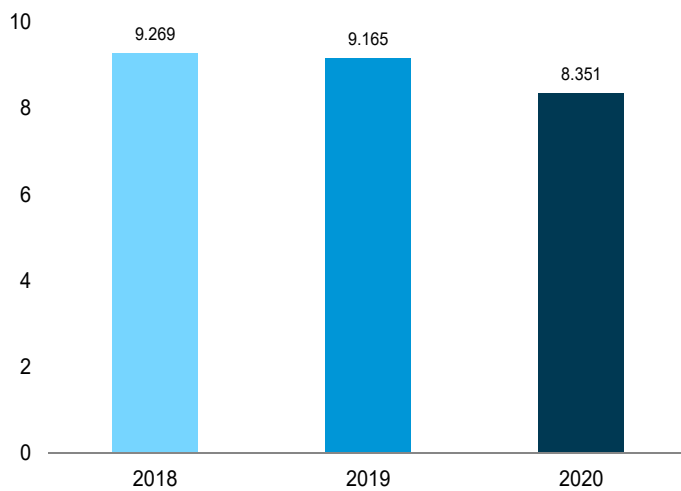
By Major Source, 1949–2019



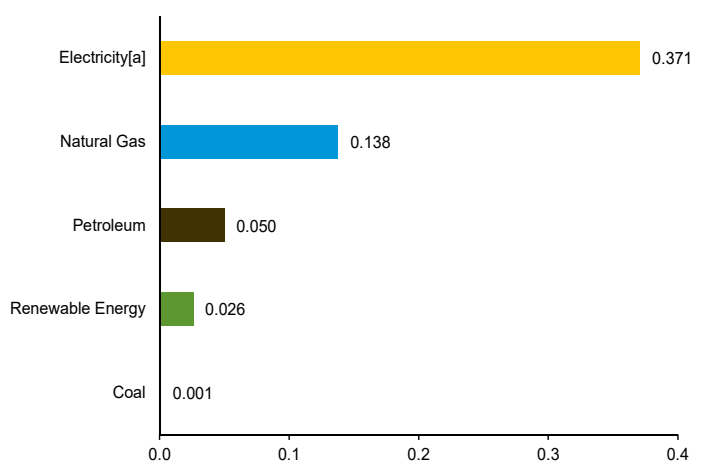
By Major Source, Monthly



Total, January–June



By Major Source, June 2020



[a] Electricity retail sales.

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

Source: Table 2.3.

**Table 2.3 Commercial Sector Energy Consumption**  
(Trillion Btu)

	Primary Consumption <sup>a</sup>										Total Primary	Elec- tricity 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	4,610
1965 Total .....	265	1,490	1,413	3,168	NA	NA	NA	NA	9	9	3,177	789	1,880	5,846
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	9,493
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	2,680	991	3,795	1	3	(s)	—	94	98	3,894	2,860	6,564	13,317
1995 Total .....	117	3,096	769	3,982	1	5	(s)	—	113	119	4,101	3,252	7,337	14,690
2000 Total .....	92	3,252	807	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	842	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	17,656
2005 Total .....	97	3,073	761	3,931	1	14	2	—	105	121	4,052	4,351	9,451	17,854
2006 Total .....	65	2,902	661	3,627	1	14	3	—	103	120	3,748	4,435	9,525	17,707
2007 Total .....	70	3,085	646	3,801	1	14	4	—	103	122	3,923	4,560	9,771	18,253
2008 Total .....	81	3,228	660	3,970	1	15	6	—	109	131	4,100	4,559	9,743	18,402
2009 Total .....	73	3,187	659	3,919	1	17	8	(s)	112	137	4,056	4,459	9,373	17,888
2010 Total .....	70	3,165	647	3,881	1	19	12	(s)	111	142	4,023	4,539	9,497	18,059
2011 Total .....	62	3,216	632	3,910	(s)	20	20	(s)	115	155	4,066	4,531	9,385	17,982
2012 Total .....	44	2,960	560	3,563	(s)	20	33	1	108	162	3,725	4,528	9,168	17,422
2013 Total .....	41	3,380	558	3,979	(s)	20	41	1	120	182	4,161	4,562	9,206	17,930
2014 Total .....	40	3,572	578	4,190	(s)	20	52	1	127	200	4,390	4,614	9,261	18,265
2015 Total .....	31	3,316	864	4,211	(s)	20	57	1	152	230	4,441	4,643	9,073	18,157
2016 Total .....	24	3,224	832	4,079	2	20	62	1	158	242	4,321	4,665	9,044	18,030
2017 Total .....	21	3,273	820	4,113	2	20	76	1	156	255	4,368	4,616	8,916	17,900
2018 January .....	3	574	106	683	(s)	2	5	(s)	13	21	704	392	757	1,853
February .....	2	440	78	520	(s)	2	6	(s)	12	20	540	350	636	1,526
March .....	2	433	78	513	(s)	2	8	(s)	13	23	536	369	698	1,603
April .....	1	313	70	384	(s)	2	9	(s)	13	23	407	353	663	1,423
May .....	1	169	56	226	(s)	2	10	(s)	13	25	251	386	775	1,412
June .....	1	147	50	199	(s)	2	10	(s)	13	25	224	416	811	1,451
July .....	1	142	50	194	(s)	2	10	(s)	13	25	219	449	868	1,536
August .....	1	148	49	198	(s)	2	10	(s)	14	25	223	460	855	1,538
September .....	1	152	50	203	(s)	2	9	(s)	12	23	226	416	754	1,396
October .....	1	246	71	318	(s)	2	8	(s)	13	23	341	396	710	1,447
November .....	2	400	85	487	(s)	2	6	(s)	13	21	507	358	706	1,572
December .....	2	476	102	579	(s)	2	6	(s)	13	21	601	368	713	1,683
Total .....	19	3,640	845	4,503	2	20	94	2	156	274	4,777	4,715	8,949	18,441
2019 January .....	2	578	98	678	NM	2	6	(s)	13	21	699	380	743	1,823
February .....	2	491	85	578	NM	2	6	(s)	12	20	598	346	646	1,590
March .....	2	442	R 82	527	NM	2	9	(s)	13	24	551	365	691	1,607
April .....	1	258	63	322	NM	2	10	(s)	12	24	346	348	659	1,353
May .....	1	193	R 58	251	NM	2	11	(s)	12	25	R 277	378	749	1,404
June .....	1	150	52	203	(s)	2	11	(s)	12	25	228	394	766	1,388
July .....	1	149	52	202	NM	2	11	(s)	12	26	228	445	858	1,531
August .....	1	147	60	209	NM	2	11	(s)	12	25	234	444	834	1,512
September .....	1	150	48	199	NM	2	10	(s)	12	24	223	414	754	1,391
October .....	1	226	60	R 287	NM	2	9	(s)	12	23	311	390	695	1,396
November .....	1	394	83	478	NM	2	7	(s)	12	21	499	351	685	1,535
December .....	2	473	93	567	(s)	2	6	(s)	12	21	588	367	693	1,648
Total .....	17	3,650	R 836	R 4,503	2	24	107	2	146	280	R 4,783	4,622	8,774	R 18,179
2020 January .....	2	511	85	597	NM	2	7	(s)	12	21	619	368	685	1,671
February .....	2	464	75	542	NM	2	8	(s)	12	21	563	348	642	1,553
March .....	2	353	R 68	423	(s)	2	10	(s)	12	24	447	351	634	1,432
April .....	1	249	57	306	(s)	2	11	(s)	11	24	330	309	551	1,190
May .....	1	170	R 61	R 232	(s)	2	13	(s)	11	26	R 258	318	622	R 1,198
June .....	1	138	50	189	(s)	2	13	(s)	12	26	215	371	721	1,306
6-Month Total .....	9	1,884	396	2,289	1	10	62	1	70	143	2,432	2,065	3,854	8,351
2019 6-Month Total .....	9	2,111	439	2,559	1	12	53	1	73	140	2,699	2,211	4,254	9,165
2018 6-Month Total .....	11	2,076	438	2,525	1	10	47	1	78	136	2,662	2,266	4,341	9,269

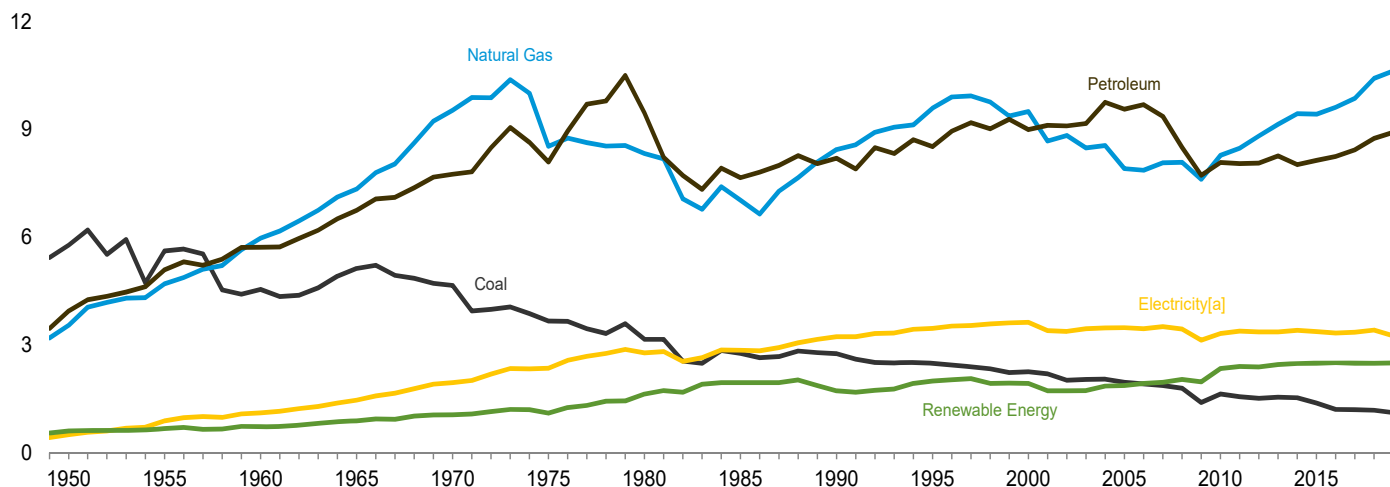
<sup>a</sup> See "Primary Energy Consumption" in Glossary.  
<sup>b</sup> See Table 10.2a for notes on series components and estimation.  
<sup>c</sup> Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.  
<sup>d</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. NM=Not meaningful. —=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, "Other Energy Losses," at end of section. • See Note 3, "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.

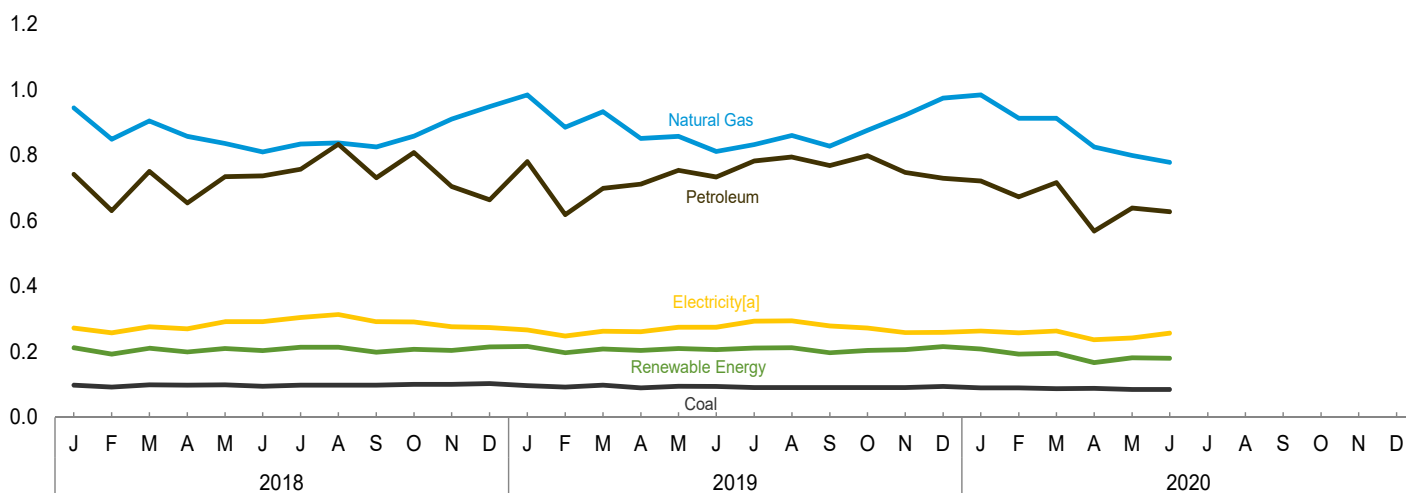
**Figure 2.4 Industrial Sector Energy Consumption**

(Quadrillion Btu)

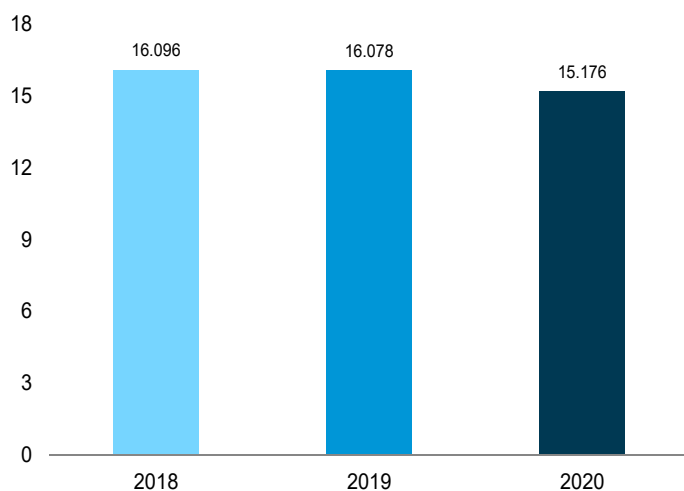
By Major Source, 1949–2019



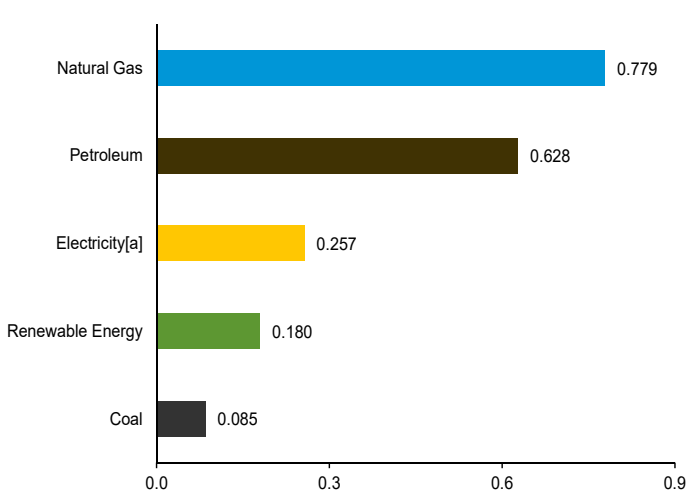
By Major Source, Monthly



Total, January–June



By Major Source, June 2020



[a] Electricity retail sales.

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

Source: Table 2.4.

**Table 2.4 Industrial Sector Energy Consumption**  
(Trillion Btu)

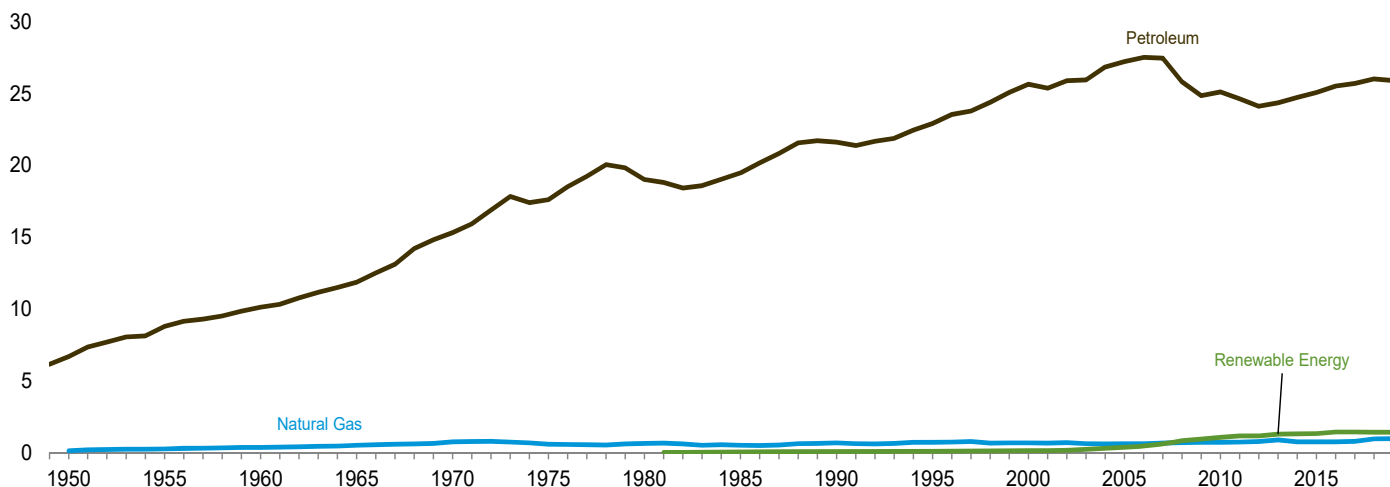
	Primary Consumption <sup>a</sup>											Elec- tricity Retail Sales <sup>i</sup>	Electrical System Energy Losses <sup>j</sup>	Total <sup>k</sup>
	Fossil Fuels <sup>b</sup>				Renewable Energy <sup>c</sup>						Total Primary			
	Coal	Natural Gas <sup>d</sup>	Petro- leum <sup>e</sup>	Total <sup>f</sup>	Hydro- electric Power <sup>g</sup>	Geo- thermal	Solar <sup>h</sup>	Wind	Bio- mass	Total				
1950 Total .....	5,781	3,546	3,943	13,271	69	NA	NA	NA	532	602	13,872	500	1,852	16,224
1955 Total .....	5,620	4,701	5,093	15,404	38	NA	NA	NA	631	669	16,073	887	2,495	19,455
1960 Total .....	4,543	5,973	5,720	16,231	39	NA	NA	NA	680	719	16,949	1,107	2,739	20,795
1965 Total .....	5,127	7,339	6,750	19,197	33	NA	NA	NA	855	888	20,085	1,463	3,487	25,035
1970 Total .....	4,656	9,536	7,754	21,888	34	NA	NA	NA	1,019	1,053	22,941	1,948	4,716	29,605
1975 Total .....	3,667	8,532	8,092	20,304	32	NA	NA	NA	1,063	1,096	21,400	2,346	5,632	29,379
1980 Total .....	3,155	8,333	9,463	20,916	33	NA	NA	NA	1,600	1,633	22,549	2,781	6,664	31,993
1985 Total .....	2,760	7,032	7,655	17,433	33	NA	NA	NA	1,918	1,951	19,384	2,855	6,518	28,757
1990 Total .....	2,756	8,443	8,199	19,402	31	2	(s)	—	1,684	1,717	21,120	3,226	7,404	31,749
1995 Total .....	2,488	9,592	8,524	20,665	55	3	(s)	—	1,934	1,992	22,657	3,455	7,796	33,908
2000 Total .....	2,256	9,500	8,998	20,820	42	4	(s)	—	1,881	1,928	22,748	3,631	8,208	34,587
2001 Total .....	2,192	8,676	9,110	20,007	33	5	(s)	—	1,681	1,719	21,726	3,400	7,526	32,653
2002 Total .....	2,019	8,832	9,096	20,007	39	5	(s)	—	1,676	1,720	21,727	3,379	7,484	32,590
2003 Total .....	2,041	8,488	9,164	19,745	43	3	(s)	—	1,678	1,725	21,469	3,454	7,565	32,489
2004 Total .....	2,047	8,550	9,753	20,488	33	4	(s)	—	1,815	1,852	22,340	3,473	7,631	33,444
2005 Total .....	1,954	7,907	9,567	19,472	32	4	(s)	—	1,834	1,871	21,343	3,477	7,554	32,374
2006 Total .....	1,914	7,861	9,693	19,529	29	4	1	—	1,892	1,926	21,455	3,451	7,411	32,317
2007 Total .....	1,865	8,074	9,363	19,326	16	5	1	—	1,937	1,958	21,284	3,507	7,515	32,306
2008 Total .....	1,793	8,083	8,502	18,420	17	5	1	—	2,012	2,035	20,455	3,444	7,362	31,261
2009 Total .....	1,392	7,609	7,720	16,698	18	4	2	—	1,948	1,972	18,670	3,130	6,580	28,380
2010 Total .....	1,631	8,278	R 8,080	R 17,983	16	4	3	—	2,320	2,343	R 20,327	3,314	6,934	R 30,574
2011 Total .....	1,561	8,481	R 8,052	R 18,105	17	4	4	(s)	2,375	2,401	R 20,505	3,382	7,005	R 30,893
2012 Total .....	1,513	8,819	R 8,063	R 18,399	22	4	7	(s)	2,349	2,383	R 20,781	3,363	6,810	R 30,954
2013 Total .....	1,546	9,140	8,260	18,929	33	4	9	(s)	2,403	2,449	21,378	3,362	6,785	31,525
2014 Total .....	1,530	9,441	8,021	18,971	12	4	11	1	2,456	2,484	21,455	3,404	6,832	31,691
2015 Total .....	1,380	9,426	R 8,138	18,926	13	4	14	(s)	2,460	2,491	R 21,417	3,366	6,578	R 31,361
2016 Total .....	1,205	9,617	R 8,247	R 19,051	12	4	19	1	2,467	2,503	R 21,554	3,333	6,461	R 31,347
2017 Total .....	1,195	9,864	R 8,433	R 19,463	13	4	22	1	2,450	2,490	R 21,953	3,358	6,487	R 31,798
2018 January .....	98	945	R 742	R 1,781	1	(s)	1	(s)	211	213	R 1,994	273	527	R 2,794
February .....	93	849	R 631	R 1,572	1	(s)	1	(s)	190	193	R 1,765	258	468	R 2,491
March .....	99	905	R 751	R 1,752	1	(s)	2	(s)	208	211	R 1,964	277	523	R 2,764
April .....	98	858	655	1,608	1	(s)	2	(s)	197	200	R 1,809	270	508	2,586
May .....	99	836	R 735	1,668	1	(s)	2	(s)	206	210	1,878	292	587	R 2,757
June .....	95	810	R 737	R 1,640	1	(s)	2	(s)	200	204	R 1,844	292	569	R 2,705
July .....	98	835	R 758	1,689	1	(s)	3	(s)	210	214	R 1,903	305	590	R 2,798
August .....	98	838	834	1,768	1	(s)	2	(s)	211	214	1,983	314	584	2,881
September .....	98	826	732	1,654	1	(s)	2	(s)	195	199	1,853	292	529	R 2,675
October .....	101	859	R 809	R 1,767	1	(s)	2	(s)	205	208	R 1,975	291	521	R 2,787
November .....	101	911	R 705	R 1,714	1	(s)	2	(s)	202	205	R 1,919	277	546	R 2,742
December .....	103	949	R 664	R 1,712	1	(s)	1	(s)	212	215	R 1,927	274	530	R 2,731
Total .....	1,180	10,422	R 8,752	R 20,328	10	4	24	1	2,446	2,486	R 22,814	3,414	6,481	R 32,710
2019 January .....	97	985	R 781	R 1,861	1	(s)	2	(s)	214	217	R 2,078	267	523	R 2,868
February .....	93	886	R 619	R 1,598	1	(s)	2	(s)	194	197	R 1,795	248	461	R 2,504
March .....	98	934	R 699	R 1,731	1	(s)	2	(s)	205	209	R 1,940	263	499	R 2,702
April .....	90	852	R 712	R 1,653	1	(s)	3	(s)	201	205	R 1,858	261	494	R 2,613
May .....	95	858	R 754	R 1,706	1	(s)	3	(s)	206	210	R 1,916	275	545	R 2,736
June .....	94	812	R 734	R 1,638	1	(s)	3	(s)	202	207	R 1,845	275	536	R 2,655
July .....	91	833	R 783	R 1,706	1	(s)	3	(s)	207	212	R 1,917	294	566	R 2,777
August .....	91	861	R 795	R 1,746	1	(s)	3	(s)	209	213	R 1,960	295	554	R 2,808
September .....	91	828	R 769	R 1,685	1	(s)	3	(s)	194	197	R 1,883	279	508	R 2,670
October .....	91	877	R 799	R 1,765	1	(s)	2	(s)	202	205	R 1,970	273	486	R 2,728
November .....	91	923	R 748	R 1,760	1	(s)	2	(s)	204	207	R 1,967	259	505	R 2,731
December .....	94	975	R 730	R 1,797	1	(s)	2	(s)	213	216	R 2,013	260	492	R 2,765
Total .....	1,117	10,626	R 8,924	R 20,645	10	4	28	1	R 2,452	2,495	R 23,140	3,249	6,168	R 32,557
2020 January .....	90	985	722	R 1,796	1	(s)	2	(s)	206	209	2,004	264	492	2,760
February .....	90	913	673	1,674	1	(s)	2	(s)	190	193	1,867	258	476	2,601
March .....	88	913	717	1,717	1	(s)	3	(s)	192	196	R 1,913	264	477	2,654
April .....	89	826	569	1,483	1	(s)	3	(s)	163	167	1,650	237	423	2,310
May .....	85	800	R 639	R 1,523	1	(s)	3	(s)	177	182	R 1,705	243	474	R 2,422
June .....	85	779	628	1,492	1	(s)	3	1	175	180	1,672	257	499	2,428
6-Month Total .....	528	5,216	3,949	9,686	5	2	16	1	1,102	1,127	10,812	1,523	2,841	15,176
2019 6-Month Total .....	568	5,328	4,300	10,186	5	2	14	1	1,223	1,245	11,431	1,589	3,058	16,078
2018 6-Month Total .....	581	5,203	4,251	10,022	5	2	12	(s)	1,212	1,231	11,254	1,661	3,181	16,096

<sup>a</sup> See "Primary Energy Consumption" in Glossary.  
<sup>b</sup> Includes non-combustion use of fossil fuels.  
<sup>c</sup> See Table 10.2b for notes on series components and estimation.  
<sup>d</sup> Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.  
<sup>e</sup> Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass."  
<sup>f</sup> Includes coal coke net imports, which are not separately displayed. See Tables 1.4a and 1.4b.  
<sup>g</sup> Conventional hydroelectric power.  
<sup>h</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>i</sup> Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.  
<sup>j</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

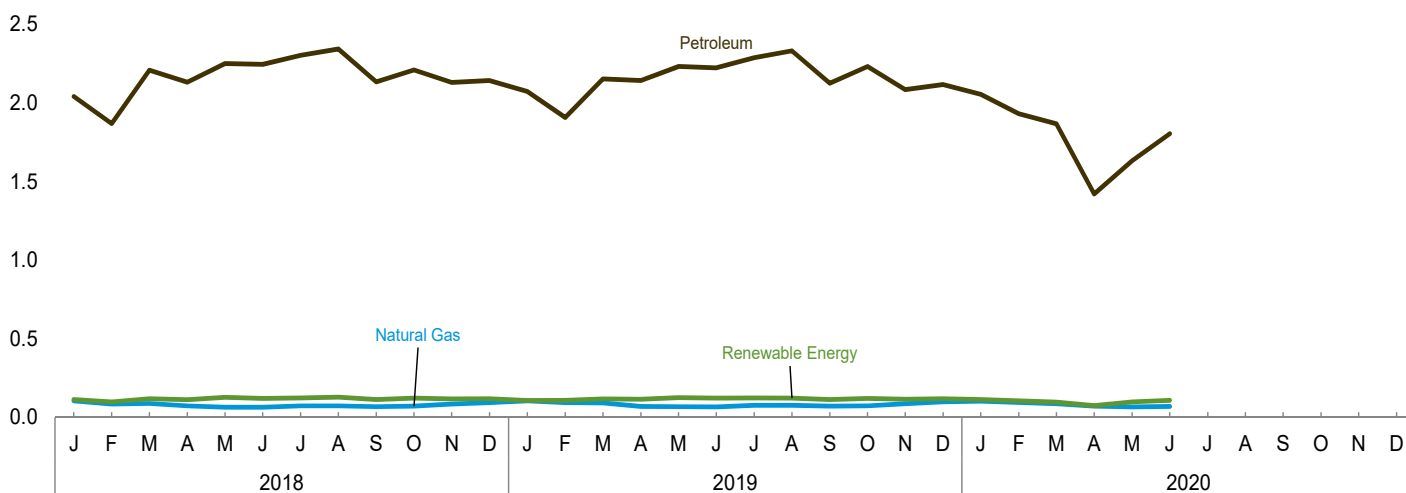
electricity retail sales. See Note 1, "Electrical System Energy Losses," at end of section.  
R=Revised. NA=Not available. —=No data reported. (s)=Less than 0.5 trillion Btu.  
Notes: • Data are estimates, except for coal totals; hydroelectric power in 1949–1978 and 1989 forward; solar; wind; and electricity 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, "Other Energy Losses," at end of section. • See Note 3, "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)

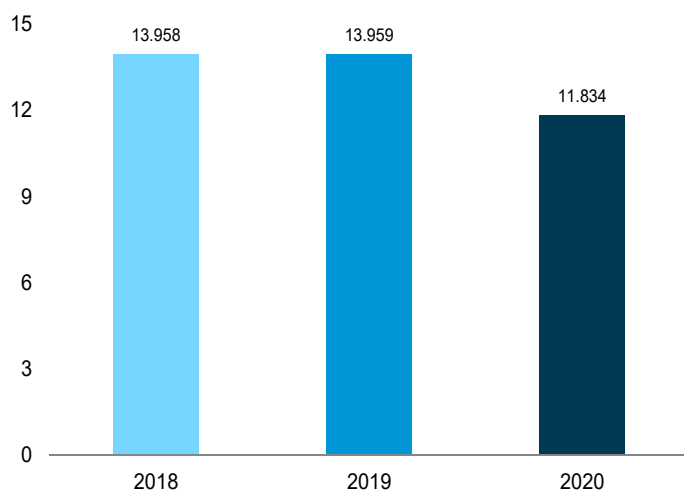
By Major Source, 1949–2019



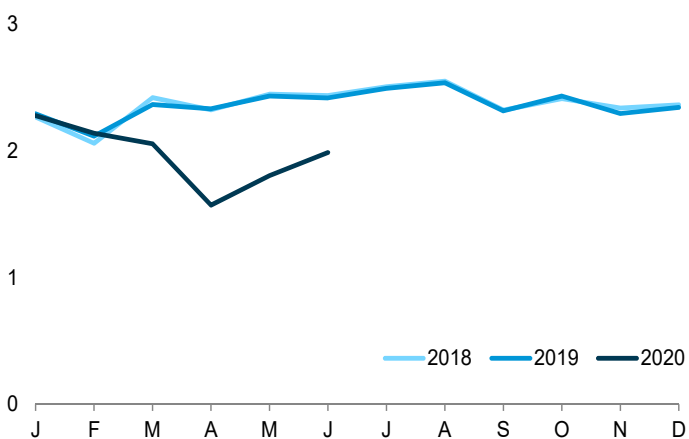
By Major Source, Monthly



Total, January–June



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	15,311	16,062	NA	16,062	11	26	16,098
1975 Total .....	1	595	17,615	18,211	NA	18,211	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	20,042	14	32	20,088
1990 Total .....	(g)	679	21,626	22,305	60	22,366	16	37	22,419
1995 Total .....	(g)	724	22,920	23,644	112	23,757	17	38	23,812
2000 Total .....	(g)	672	25,649	26,321	135	26,456	18	42	26,515
2001 Total .....	(g)	658	25,379	26,037	142	26,179	20	43	26,242
2002 Total .....	(g)	699	25,879	26,578	170	26,747	19	42	26,808
2003 Total .....	(g)	627	25,950	26,577	230	26,807	23	51	26,881
2004 Total .....	(g)	602	26,856	27,458	290	27,748	25	54	27,826
2005 Total .....	(g)	624	27,217	27,840	339	28,179	26	56	28,261
2006 Total .....	(g)	625	27,518	28,143	475	28,618	25	54	28,697
2007 Total .....	(g)	663	27,462	28,126	602	28,727	28	60	28,815
2008 Total .....	(g)	692	25,823	26,515	825	27,339	26	56	27,421
2009 Total .....	(g)	715	24,860	25,575	935	26,510	27	56	26,592
2010 Total .....	(g)	719	25,103	25,822	1,075	26,897	26	55	26,978
2011 Total .....	(g)	734	24,626	25,360	1,159	26,518	26	54	26,599
2012 Total .....	(g)	780	24,111	24,890	1,160	26,050	25	51	26,126
2013 Total .....	(g)	887	24,362	25,249	1,284	26,533	26	53	26,612
2014 Total .....	(g)	760	24,727	25,487	1,302	26,789	26	53	26,869
2015 Total .....	(g)	745	25,082	25,827	1,334	27,161	26	51	27,238
2016 Total .....	(g)	757	25,511	26,268	1,443	27,710	26	50	27,786
2017 Total .....	(g)	799	25,702	26,500	1,439	27,939	26	50	28,014
2018 January .....	(g)	105	2,042	2,147	113	2,260	3	5	2,267
February .....	(g)	85	1,869	1,955	99	2,054	2	4	2,060
March .....	(g)	88	2,208	2,296	119	2,415	2	4	2,421
April .....	(g)	74	2,132	2,206	112	2,318	2	4	2,324
May .....	(g)	65	2,250	2,314	127	2,441	2	4	2,447
June .....	(g)	65	2,246	2,311	121	2,432	2	4	2,438
July .....	(g)	74	2,303	2,377	124	2,500	2	4	2,507
August .....	(g)	73	2,343	2,416	129	2,545	2	4	2,551
September .....	(g)	68	2,135	2,203	113	2,315	2	4	2,321
October .....	(g)	72	2,211	2,282	122	2,405	2	4	2,411
November .....	(g)	85	2,131	2,216	117	2,333	2	4	2,339
December .....	(g)	94	2,143	2,238	119	2,357	2	4	2,363
Total .....	(g)	948	26,012	26,960	1,415	28,375	26	50	28,451
2019 January .....	(g)	106	R 2,073	R 2,178	R 107	R 2,285	2	4	R 2,292
February .....	(g)	93	R 1,908	R 2,001	R 108	R 2,109	2	4	R 2,116
March .....	(g)	91	R 2,152	R 2,243	R 117	R 2,359	2	4	R 2,366
April .....	(g)	70	R 2,142	R 2,212	115	R 2,327	2	4	R 2,333
May .....	(g)	68	R 2,233	R 2,301	126	R 2,427	2	4	R 2,433
June .....	(g)	67	R 2,224	R 2,291	122	R 2,413	2	4	R 2,419
July .....	(g)	76	R 2,288	R 2,364	R 124	R 2,488	2	4	R 2,494
August .....	(g)	77	R 2,332	R 2,409	R 122	R 2,531	2	4	R 2,538
September .....	(g)	71	R 2,125	R 2,196	113	R 2,309	2	4	R 2,316
October .....	(g)	74	R 2,232	R 2,306	121	R 2,427	2	3	R 2,433
November .....	(g)	87	R 2,086	R 2,172	R 116	R 2,289	2	4	R 2,295
December .....	(g)	98	R 2,117	R 2,216	R 119	R 2,335	2	4	R 2,342
Total .....	(g)	978	R 25,912	R 26,889	R 1,411	R 28,300	26	50	R 28,376
2020 January .....	(g)	103	2,054	2,157	113	2,270	2	5	2,277
February .....	(g)	95	1,932	2,027	106	2,133	2	4	2,139
March .....	(g)	86	1,867	1,953	97	2,050	2	4	2,056
April .....	(g)	72	1,422	1,494	75	1,568	2	3	1,572
May .....	(g)	67	R 1,633	R 1,700	98	R 1,798	2	3	R 1,803
June .....	(g)	69	1,804	1,873	109	1,982	2	3	1,987
6-Month Total .....	(g)	492	10,711	11,203	598	11,802	11	21	11,834
2019 6-Month Total .....	(g)	494	12,732	13,226	695	13,921	13	26	13,959
2018 6-Month Total .....	(g)	483	12,747	13,230	690	13,920	13	25	13,958

<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." Includes non-combustion use of lubricants.

<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>g</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, "Other Energy Losses," at end of section. • See Note 3, "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.

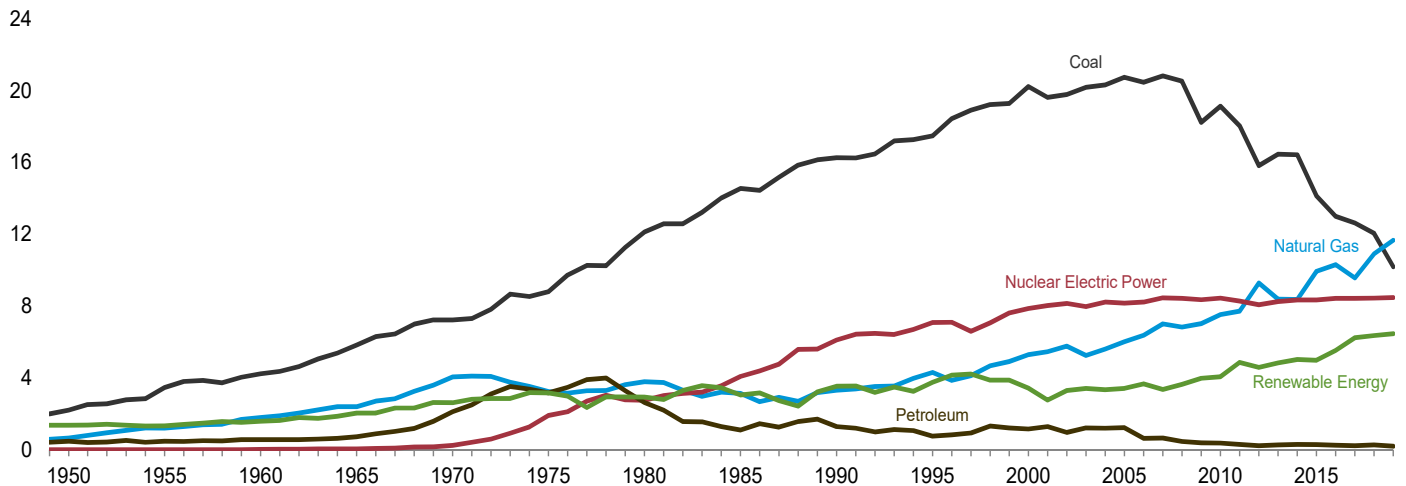
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#consumption> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

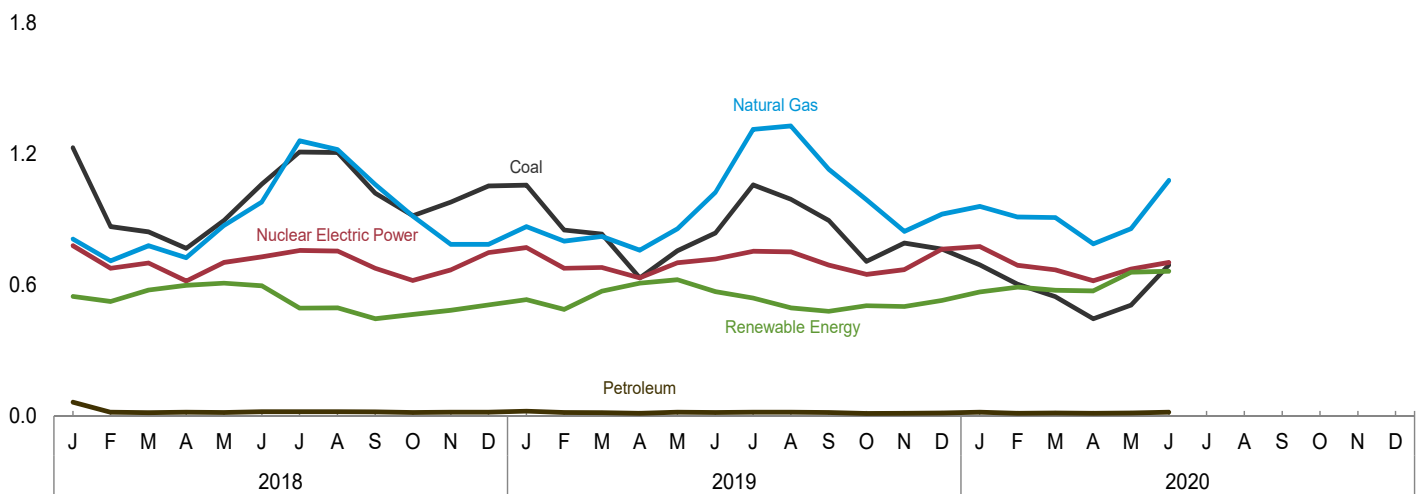
**Figure 2.6 Electric Power Sector Energy Consumption**

(Quadrillion Btu)

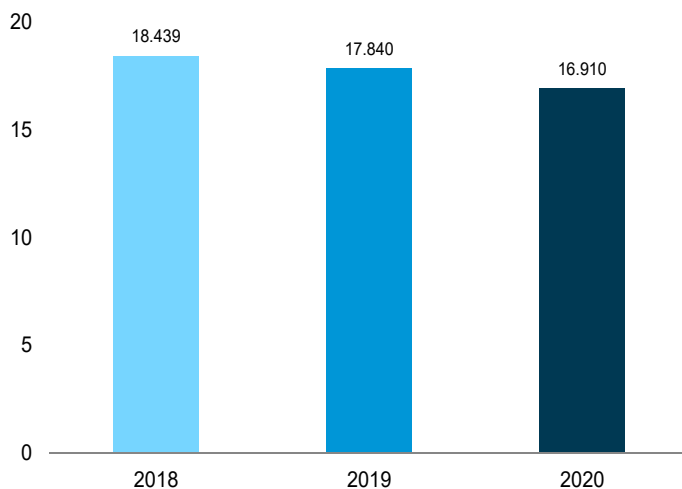
By Major Source, 1949–2019



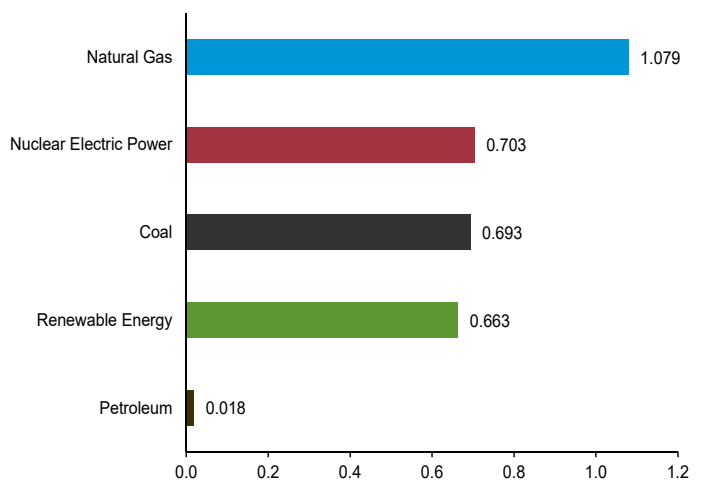
By Major Source, Monthly



Total, January–June



By Major Source, June 2020



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>												
	Fossil Fuels				Nuclear Electric Power	Renewable Energy <sup>b</sup>						Elec- tricity Net Imports <sup>f</sup>	Total Primary
	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 .....	16,261	3,309	1,289	20,859	6,104	3,014	161	4	29	317	3,524	8	930,495
1995 Total .....	17,466	4,302	755	22,523	7,075	3,149	138	5	33	422	3,747	134	33,479
2000 Total .....	20,220	5,293	1,144	26,658	7,862	2,768	144	5	57	453	3,427	115	38,062
2001 Total .....	19,614	5,458	1,276	26,348	8,029	2,209	142	6	70	337	2,763	75	37,215
2002 Total .....	19,783	5,767	961	26,511	8,145	2,650	147	6	105	380	3,288	72	38,016
2003 Total .....	20,185	5,246	1,205	26,636	7,960	2,749	146	5	113	397	3,411	22	38,028
2004 Total .....	20,305	5,595	1,201	27,101	8,223	2,655	148	6	142	388	3,339	39	38,701
2005 Total .....	20,737	6,015	1,222	27,974	8,161	2,670	147	6	178	406	3,406	85	39,626
2006 Total .....	20,462	6,375	637	27,474	8,215	2,839	145	5	264	412	3,665	63	39,417
2007 Total .....	20,808	7,005	648	28,461	8,459	2,430	145	6	341	423	3,345	107	40,371
2008 Total .....	20,513	6,829	459	27,801	8,426	2,494	146	9	546	435	3,630	112	39,969
2009 Total .....	18,225	7,022	382	25,630	8,355	2,650	146	9	721	441	3,967	116	38,069
2010 Total .....	19,133	7,528	370	27,031	8,434	2,521	148	12	923	459	4,064	89	39,619
2011 Total .....	18,035	7,712	295	26,042	8,269	3,085	149	17	1,167	437	4,855	127	39,293
2012 Total .....	15,821	9,287	214	25,322	8,062	2,606	148	40	1,339	453	4,586	161	38,131
2013 Total .....	16,451	8,376	255	25,082	8,244	2,529	151	83	1,600	470	4,833	197	38,357
2014 Total .....	16,427	8,362	295	25,085	8,338	2,454	151	165	1,726	530	5,026	182	38,629
2015 Total .....	14,138	9,926	276	24,341	8,337	2,308	148	228	1,776	525	4,985	227	37,890
2016 Total .....	12,996	10,301	244	23,542	8,427	2,459	146	328	2,094	505	5,531	227	37,727
2017 Total .....	12,622	9,555	218	22,395	8,419	2,752	147	486	2,341	510	6,235	192	37,241
2018 January .....	1,229	811	64	2,103	780	227	12	30	233	46	548	14	3,446
February .....	868	711	17	1,596	677	226	12	35	211	42	525	12	2,811
March .....	843	780	15	1,638	701	234	12	46	241	44	577	15	2,931
April .....	768	725	17	1,510	618	255	11	55	240	39	599	10	2,737
May .....	896	873	16	1,785	704	276	13	62	218	40	608	14	3,112
June .....	1,062	981	20	2,063	729	250	12	67	225	42	596	15	3,402
July .....	1,209	1,261	20	2,489	758	228	12	61	150	44	494	15	3,756
August .....	1,207	1,221	20	2,449	756	199	12	60	181	43	496	17	3,717
September .....	1,021	1,061	19	2,101	677	174	12	54	168	37	445	11	3,234
October .....	917	915	16	1,848	621	177	12	45	193	39	465	10	2,944
November .....	980	786	18	1,784	669	198	12	34	200	40	484	9	2,945
December .....	1,054	786	18	1,858	749	206	13	28	221	41	509	11	3,127
Total .....	12,053	10,912	260	23,225	8,438	2,651	145	576	2,480	496	6,348	152	38,163
2019 January .....	1,057	868	22	1,947	771	219	13	33	228	40	533	11	3,262
February .....	852	801	16	1,669	677	198	12	35	209	35	488	11	2,844
March .....	834	823	15	1,672	680	231	13	53	238	37	572	8	2,933
April .....	633	759	12	1,404	633	231	11	62	270	35	609	8	2,654
May .....	757	858	17	1,632	702	273	12	65	236	39	624	10	2,969
June .....	838	1,024	16	1,877	719	240	12	72	209	37	570	12	3,179
July .....	1,059	1,313	18	2,391	755	215	13	74	200	39	541	13	3,699
August .....	993	1,329	18	2,340	752	191	13	71	181	41	496	14	3,602
September .....	896	1,130	16	2,042	691	148	12	61	222	37	480	12	3,224
October .....	708	990	11	1,709	649	147	11	55	256	35	505	7	2,870
November .....	792	846	12	1,650	670	186	10	39	233	34	502	12	2,835
December .....	764	925	14	1,703	764	201	11	32	247	39	530	14	3,011
Total .....	10,181	11,666	189	22,037	8,462	2,480	142	651	2,729	448	6,450	133	37,082
2020 January .....	693	960	17	1,670	776	220	11	41	258	38	568	11	3,025
February .....	604	911	12	1,527	690	227	10	51	266	36	590	10	2,816
March .....	546	909	14	1,469	669	202	13	57	268	37	576	13	2,727
April .....	446	788	13	1,246	619	188	12	72	269	33	573	11	2,449
May .....	507	858	14	1,379	673	267	13	88	256	35	659	12	2,723
June .....	693	1,079	18	1,791	703	259	12	85	274	33	663	13	3,170
6-Month Total .....	3,488	5,504	89	9,081	4,128	1,364	71	395	1,591	210	3,630	70	16,910
2019 6-Month Total .....	4,970	5,132	99	10,201	4,182	1,392	72	319	1,390	223	3,396	61	17,840
2018 6-Month Total .....	5,666	4,882	149	10,696	4,209	1,469	71	294	1,367	252	3,454	79	18,439

<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 3, "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	DHS <sup>b</sup>	Energy	GSA <sup>c</sup>	HHS <sup>d</sup>	Interior	Justice	NASA <sup>e</sup>	Postal Service	Trans- portation	Veterans Affairs	Other <sup>f</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	18.3	31.9	18.5	10.1	7.3	22.7	10.8	50.9	5.5	30.6	22.7	1,132.3
2004 .....	7.0	960.7	23.5	31.4	18.3	8.8	8.7	17.5	9.9	50.5	5.2	29.9	20.4	1,191.7
2005 .....	7.5	933.2	18.9	29.6	18.4	9.6	8.6	18.8	10.3	53.5	5.0	30.0	23.2	1,166.4
2006 .....	6.8	843.7	17.1	32.9	18.2	9.3	8.1	23.5	10.2	51.8	4.6	29.3	20.9	1,076.4
2007 .....	6.8	864.6	17.1	31.5	19.1	9.9	7.5	20.7	10.6	45.8	5.6	30.0	21.0	1,090.2
2008 .....	6.5	910.8	21.7	32.1	18.8	10.3	7.1	19.0	10.8	47.1	7.7	29.0	22.4	1,143.2
2009 .....	6.6	874.3	18.6	31.1	18.6	10.8	7.9	16.5	10.2	44.2	4.3	29.9	21.8	1,094.8
2010 .....	6.8	889.9	21.2	31.7	18.8	10.4	7.3	15.7	10.1	43.3	5.7	30.2	21.8	1,112.7
2011 .....	8.3	890.3	20.3	33.1	18.5	10.5	7.3	13.9	10.1	43.0	6.7	30.6	21.4	1,114.1
2012 .....	6.7	828.5	20.1	30.3	16.3	10.0	6.7	15.1	8.9	40.8	5.6	29.7	20.5	1,039.3
2013 .....	7.3	749.5	18.9	28.9	16.4	10.5	6.2	15.3	8.7	41.9	5.3	29.9	20.4	959.3
2014 .....	6.3	730.6	18.5	29.4	17.0	9.5	6.2	15.6	8.3	43.0	5.2	31.4	20.6	941.5
2015 .....	6.2	734.5	17.9	30.1	16.3	9.0	6.8	16.2	8.4	44.0	6.0	30.7	19.8	945.8
2016 .....	6.2	709.2	18.1	28.9	15.8	8.7	6.4	15.6	8.5	43.9	6.0	30.3	19.5	917.2
2017 .....	6.3	707.9	19.2	28.8	15.0	8.8	5.9	15.5	8.6	43.7	6.6	29.1	19.7	915.1
2018 .....	6.1	690.6	16.8	27.3	15.6	10.0	6.1	16.2	8.4	45.5	5.8	29.7	18.8	897.0
2019 .....	5.9	682.1	16.2	26.4	15.4	9.8	6.2	15.8	8.6	46.0	5.9	31.9	18.9	889.0

<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> U.S. Department of Homeland Security.

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

<sup>d</sup> U.S. Department of Health and Human Services.

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

<sup>f</sup> Includes all U.S. government agencies not separately displayed. See <http://ctsedweb.ee.doe.gov/Annual/Report/AgencyReference.aspx> for agency list.  
-- =Not applicable.

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.

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

**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	129.6	.4	198.4	525.4	2.3	49.0	775.4	3.6	196.1	17.7	1,143.2
2009 .....	20.3	131.7	.3	166.4	505.7	3.2	48.3	723.9	10.1	191.3	17.7	1,094.8
2010 .....	20.0	130.1	.4	157.8	535.8	2.5	51.3	747.7	3.0	193.7	18.2	1,112.7
2011 .....	18.5	124.7	.9	166.5	533.6	2.0	52.7	755.8	2.7	193.2	19.1	1,114.1
2012 .....	15.9	116.2	.4	148.6	493.5	1.7	50.1	694.4	3.1	187.2	22.5	1,039.3
2013 .....	14.3	122.5	.7	140.0	424.0	1.9	46.6	613.2	2.8	184.7	21.8	959.3
2014 .....	13.5	125.6	.3	133.5	414.3	1.8	44.9	594.8	3.6	182.1	21.9	941.5
2015 .....	12.6	122.2	.3	134.4	418.9	1.8	46.8	602.2	3.7	184.3	20.9	945.8
2016 .....	10.2	115.4	.3	129.7	403.9	1.7	46.5	582.2	3.6	184.5	21.4	917.2
2017 .....	9.1	115.1	.3	135.1	400.1	1.5	46.4	583.5	2.7	181.7	23.0	915.1
2018 .....	6.2	125.8	.3	127.8	383.2	1.7	45.5	558.5	3.0	180.0	23.6	897.0
2019 .....	5.0	131.6	.3	125.4	376.9	1.8	46.6	551.0	2.7	178.1	20.6	889.0

<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.

Sources: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program. See <http://ctsedweb.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)".

## 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. Other Energy Losses.** Similar to electrical system energy losses, there are also other energy losses from energy consumption not separately identified. There are losses in the production of energy, the transformation of one form of energy to another form of energy, and the distribution and use of energy. For example, there are transformation losses in the process of refining crude oil into usable petroleum products, processing natural gas into marketable dry gas, and in the process of converting energy from the sun into usable energy with solar panels. All uses of primary energy have efficiency losses, usually in the form of heat, when energy is converted to do useful work. Examples include when motor gasoline is burned to move vehicles, when natural gas is burned to heat homes, or in any household appliance that uses electricity. The Lawrence Livermore National Laboratory estimates primary energy losses by end-use sector by applying an end-use efficiency factor to EIA's *Monthly Energy Review* consumption data. <https://flowcharts.llnl.gov/>.

**Note 3. 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.

2009–2011: 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 biodiesel consumption (calculated using biodiesel data from U.S. Energy Information Administration (EIA), 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" (the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1); minus other renewable diesel fuel and other renewable fuels consumption from Table 10.4.

2012 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 biodiesel consumption from Table 10.4; minus other renewable diesel fuel and other renewable fuels consumption from Table 10.4.

### *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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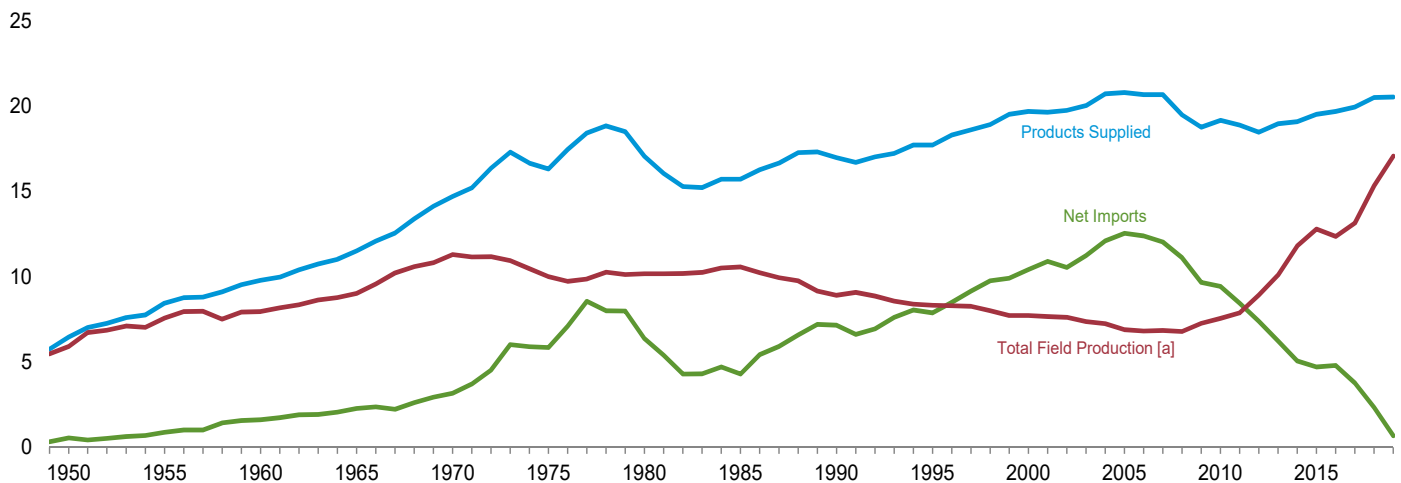
## 3. Petroleum

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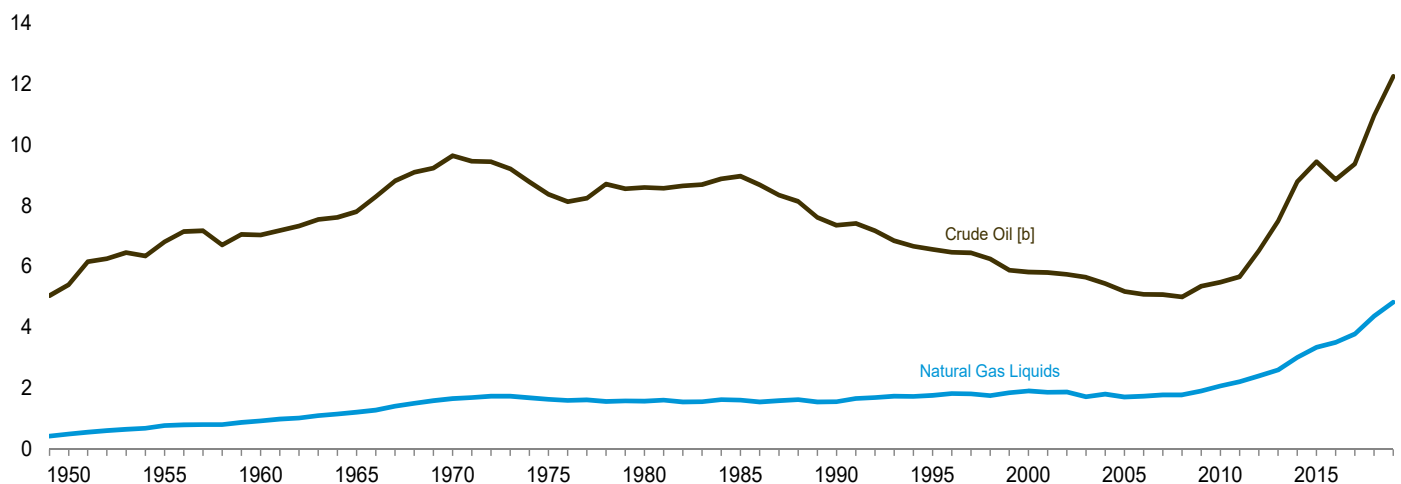
**Figure 3.1 Petroleum Overview**

(Million Barrels Per Day)

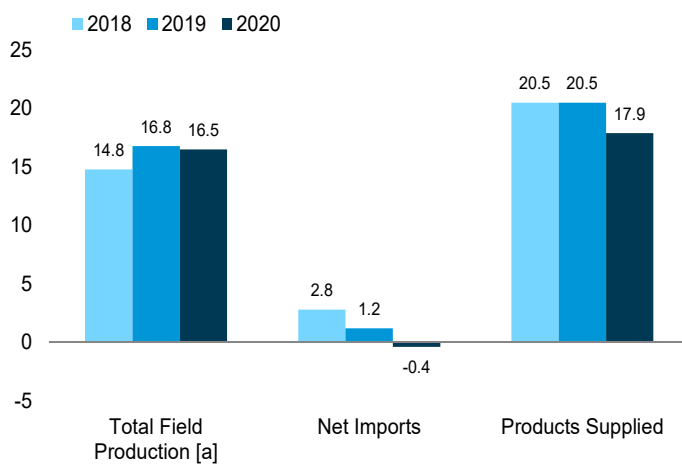
Overview, 1949–2019



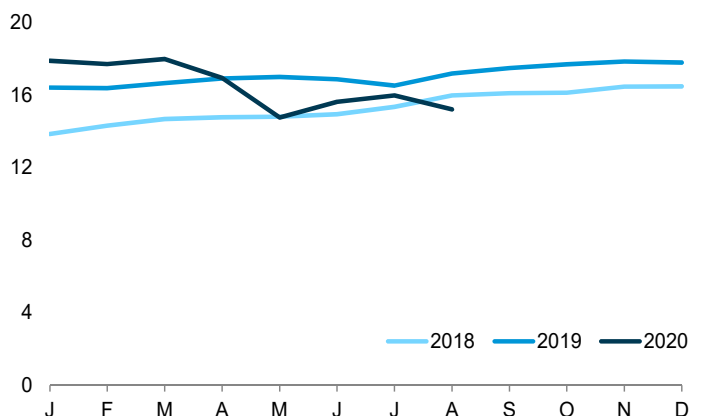
Crude Oil and Natural Gas Liquids Field Production, 1949–2019



Overview, January–August



Total Field Production [a], Monthly



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

[b] Includes lease condensate.

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

**Table 3.1 Petroleum Overview**  
(Thousand Barrels per Day)

	Field Production <sup>a</sup>					Renewable Fuels and Oxygenates <sup>e</sup>	Processing Gain <sup>f</sup>	Trade			Stock Change <sup>i</sup>	Adjustments <sup>g,j</sup>	Petroleum Products Supplied
	Crude Oil <sup>b,c</sup>			Natural Gas Liquids	Imports <sup>g</sup>			Exports	Net Imports <sup>h</sup>				
	48 States <sup>d</sup>	Alaska	Total							Total <sup>c</sup>			
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	<sup>k</sup> 146	509	20,802
2006 Average	4,345	741	5,086	1,739	6,825	NA	994	13,707	1,317	12,390	59	537	20,687
2007 Average	4,352	722	5,074	1,783	6,857	NA	996	13,468	1,433	12,036	-152	640	20,680
2008 Average	4,317	683	5,000	1,784	6,783	NA	993	12,915	1,802	11,114	195	803	19,498
2009 Average	4,711	645	5,357	1,910	7,267	746	979	11,691	2,024	9,667	107	221	18,771
2010 Average	4,885	600	5,484	2,074	7,558	907	1,068	11,793	2,353	9,441	<sup>R</sup> 42	246	<sup>R</sup> 19,178
2011 Average	<sup>R</sup> 5,106	561	5,667	2,216	7,883	1,016	1,076	11,436	2,986	8,450	<sup>R</sup> -138	<sup>R</sup> 332	<sup>R</sup> 18,896
2012 Average	<sup>R</sup> 5,995	526	<sup>R</sup> 6,521	2,408	<sup>R</sup> 8,929	964	1,059	10,598	3,205	7,393	<sup>R</sup> 151	<sup>R</sup> 289	<sup>R</sup> 18,482
2013 Average	<sup>R</sup> 6,979	515	<sup>R</sup> 7,494	2,606	<sup>R</sup> 10,100	1,002	1,087	9,859	3,621	6,237	<sup>R</sup> -138	<sup>R</sup> 402	<sup>R</sup> 18,967
2014 Average	<sup>R</sup> 8,293	496	<sup>R</sup> 8,789	3,015	<sup>R</sup> 11,804	1,055	1,081	9,241	4,176	5,065	267	<sup>R</sup> 363	<sup>R</sup> 19,100
2015 Average	<sup>R</sup> 8,964	483	<sup>R</sup> 9,446	3,342	<sup>R</sup> 12,789	1,095	1,062	9,449	4,738	4,711	<sup>R</sup> 431	<sup>R</sup> 306	<sup>R</sup> 19,532
2016 Average	<sup>R</sup> 8,361	490	<sup>R</sup> 8,852	3,509	<sup>R</sup> 12,361	1,158	1,118	10,055	5,261	4,795	<sup>R</sup> 125	<sup>R</sup> 385	<sup>R</sup> 19,692
2017 Average	<sup>R</sup> 8,877	495	<sup>R</sup> 9,371	3,783	<sup>R</sup> 13,154	1,198	1,111	10,144	6,376	3,768	<sup>R</sup> -364	<sup>R</sup> 356	<sup>R</sup> 19,952
2018 January	<sup>R</sup> 9,491	508	<sup>R</sup> 9,998	3,853	<sup>R</sup> 13,851	1,210	1,102	10,280	6,461	3,819	<sup>R</sup> -405	<sup>R</sup> 176	<sup>R</sup> 20,564
February	<sup>R</sup> 9,748	513	<sup>R</sup> 10,261	4,061	<sup>R</sup> 14,321	1,228	1,097	9,586	6,907	2,679	<sup>R</sup> -142	<sup>R</sup> 226	<sup>R</sup> 19,693
March	<sup>R</sup> 9,976	512	<sup>R</sup> 10,489	4,200	<sup>R</sup> 14,689	1,214	1,096	9,822	7,337	2,485	<sup>R</sup> -457	<sup>R</sup> 791	<sup>R</sup> 20,731
April	<sup>R</sup> 9,999	497	<sup>R</sup> 10,496	4,286	<sup>R</sup> 14,782	1,205	1,113	10,375	7,797	2,578	<sup>R</sup> 119	<sup>R</sup> 478	<sup>R</sup> 20,038
May	<sup>R</sup> 9,961	496	<sup>R</sup> 10,457	4,352	<sup>R</sup> 14,809	1,230	1,141	10,227	7,717	2,510	<sup>R</sup> 169	<sup>R</sup> 731	<sup>R</sup> 20,251
June	<sup>R</sup> 10,154	451	<sup>R</sup> 10,605	4,337	<sup>R</sup> 14,942	1,260	1,133	10,726	7,824	2,902	<sup>R</sup> -109	<sup>R</sup> 425	<sup>R</sup> 20,770
July	<sup>R</sup> 10,509	395	<sup>R</sup> 10,903	4,452	<sup>R</sup> 15,355	1,273	1,169	10,193	7,963	2,231	<sup>R</sup> 186	<sup>R</sup> 830	<sup>R</sup> 20,671
August	<sup>R</sup> 10,956	428	<sup>R</sup> 11,384	4,602	<sup>R</sup> 15,985	1,289	1,185	10,434	7,164	3,270	<sup>R</sup> 622	<sup>R</sup> 248	<sup>R</sup> 21,356
September	<sup>R</sup> 10,992	471	<sup>R</sup> 11,463	4,638	<sup>R</sup> 16,102	1,214	1,141	9,889	7,415	2,474	<sup>R</sup> 1,311	<sup>R</sup> 465	<sup>R</sup> 20,084
October	<sup>R</sup> 11,067	487	<sup>R</sup> 11,554	4,588	<sup>R</sup> 16,142	1,220	1,116	9,468	8,011	1,457	<sup>R</sup> -520	<sup>R</sup> 332	<sup>R</sup> 20,786
November	<sup>R</sup> 11,410	497	<sup>R</sup> 11,907	4,563	<sup>R</sup> 16,470	1,240	1,149	9,272	8,281	991	<sup>R</sup> -257	<sup>R</sup> 666	<sup>R</sup> 20,774
December	<sup>R</sup> 11,508	496	<sup>R</sup> 12,004	4,483	<sup>R</sup> 16,487	1,222	1,210	9,021	8,301	720	<sup>R</sup> 24	<sup>R</sup> 712	<sup>R</sup> 20,327
Average	<sup>R</sup> 10,485	479	<sup>R</sup> 10,964	4,369	<sup>R</sup> 15,333	1,234	1,138	9,943	7,601	2,341	<sup>R</sup> 44	<sup>R</sup> 509	<sup>R</sup> 20,512
2019 January	11,369	496	11,865	<sup>R</sup> 4,554	<sup>R</sup> 16,419	1,112	<sup>R</sup> 1,109	<sup>R</sup> 9,768	<sup>R</sup> 7,982	<sup>R</sup> 1,786	<sup>R</sup> 246	<sup>R</sup> 435	<sup>R</sup> 20,615
February	11,191	488	11,679	<sup>R</sup> 4,713	<sup>R</sup> 16,392	<sup>R</sup> 1,115	<sup>R</sup> 1,007	<sup>R</sup> 8,671	<sup>R</sup> 8,219	<sup>R</sup> 452	<sup>R</sup> -597	<sup>R</sup> 722	<sup>R</sup> 20,284
March	11,456	481	11,937	<sup>R</sup> 4,729	<sup>R</sup> 16,667	<sup>R</sup> 1,087	<sup>R</sup> 1,038	<sup>R</sup> 8,905	<sup>R</sup> 7,946	<sup>R</sup> 959	<sup>R</sup> -100	<sup>R</sup> 324	<sup>R</sup> 20,176
April	11,659	475	12,135	<sup>R</sup> 4,790	<sup>R</sup> 16,925	<sup>R</sup> 1,138	<sup>R</sup> 1,065	<sup>R</sup> 9,525	<sup>R</sup> 8,382	<sup>R</sup> 1,143	<sup>R</sup> 596	<sup>R</sup> 658	<sup>R</sup> 20,333
May	11,689	474	12,163	<sup>R</sup> 4,840	<sup>R</sup> 17,003	<sup>R</sup> 1,151	<sup>R</sup> 1,064	<sup>R</sup> 9,893	<sup>R</sup> 8,238	<sup>R</sup> 1,655	<sup>R</sup> 1,281	<sup>R</sup> 795	<sup>R</sup> 20,387
June	11,633	455	12,088	<sup>R</sup> 4,795	<sup>R</sup> 16,882	1,159	<sup>R</sup> 1,076	<sup>R</sup> 9,297	<sup>R</sup> 8,576	<sup>R</sup> 720	<sup>R</sup> -99	<sup>R</sup> 718	<sup>R</sup> 20,654
July	11,371	448	11,819	<sup>R</sup> 4,707	<sup>R</sup> 16,526	1,155	<sup>R</sup> 1,066	<sup>R</sup> 9,601	<sup>R</sup> 8,084	<sup>R</sup> 1,517	<sup>R</sup> 158	<sup>R</sup> 629	<sup>R</sup> 20,735
August	12,043	382	12,425	<sup>R</sup> 4,766	<sup>R</sup> 17,191	1,133	<sup>R</sup> 1,099	<sup>R</sup> 9,387	<sup>R</sup> 8,438	<sup>R</sup> 949	<sup>R</sup> -271	<sup>R</sup> 516	<sup>R</sup> 21,158
September	12,046	449	12,495	<sup>R</sup> 4,990	<sup>R</sup> 17,485	1,071	<sup>R</sup> 1,018	<sup>R</sup> 8,712	<sup>R</sup> 8,672	<sup>R</sup> 40	<sup>R</sup> -77	<sup>R</sup> 559	<sup>R</sup> 20,248
October	12,198	475	12,673	5,022	<sup>R</sup> 17,695	1,093	<sup>R</sup> 1,014	<sup>R</sup> 8,599	<sup>R</sup> 9,039	<sup>R</sup> -440	<sup>R</sup> -532	<sup>R</sup> 821	<sup>R</sup> 20,714
November	12,376	484	12,860	<sup>R</sup> 4,995	<sup>R</sup> 17,854	1,129	<sup>R</sup> 1,131	<sup>R</sup> 8,103	<sup>R</sup> 8,741	<sup>R</sup> -638	<sup>R</sup> -284	<sup>R</sup> 976	<sup>R</sup> 20,736
December	12,321	481	12,802	<sup>R</sup> 4,992	<sup>R</sup> 17,794	1,157	<sup>R</sup> 1,133	<sup>R</sup> 9,159	<sup>R</sup> 9,331	<sup>R</sup> -171	<sup>R</sup> -44	<sup>R</sup> 486	<sup>R</sup> 20,443
Average	11,782	466	12,248	<sup>R</sup> 4,825	<sup>R</sup> 17,073	1,125	<sup>R</sup> 1,069	<sup>R</sup> 9,141	<sup>R</sup> 8,471	<sup>R</sup> 670	<sup>R</sup> 28	<sup>R</sup> 635	<sup>R</sup> 20,543
2020 January	<sup>E</sup> 12,272	<sup>E</sup> 482	<sup>E</sup> 12,755	5,145	<sup>E</sup> 17,900	1,161	1,136	8,572	9,177	-605	550	863	19,905
February	<sup>E</sup> 12,269	<sup>E</sup> 477	<sup>E</sup> 12,746	4,965	<sup>E</sup> 17,711	1,142	939	8,457	9,983	-1,526	-664	908	19,839
March	<sup>E</sup> 12,268	<sup>E</sup> 470	<sup>E</sup> 12,737	5,253	<sup>E</sup> 17,990	1,049	978	8,345	9,621	-1,276	1,334	876	18,284
April	<sup>RE</sup> 11,547	<sup>E</sup> 463	<sup>RE</sup> 12,010	4,934	<sup>RE</sup> 16,944	668	767	7,236	8,452	-1,216	2,654	<sup>R</sup> 181	14,691
May	<sup>RE</sup> 9,612	<sup>E</sup> 404	<sup>RE</sup> 10,016	4,745	<sup>RE</sup> 14,761	781	807	7,757	6,818	939	1,242	<sup>R</sup> 57	16,103
June	<sup>RE</sup> 10,075	<sup>RE</sup> 361	<sup>RE</sup> 10,436	<sup>R</sup> 5,197	<sup>RE</sup> 15,634	<sup>R</sup> 969	<sup>R</sup> 873	<sup>R</sup> 8,367	<sup>R</sup> 7,692	<sup>R</sup> 675	<sup>R</sup> 1,168	<sup>R</sup> 453	<sup>R</sup> 17,435
July	<sup>E</sup> 10,590	<sup>E</sup> 446	<sup>E</sup> 11,035	<sup>E</sup> 4,949	<sup>E</sup> 15,984	<sup>E</sup> 962	<sup>E</sup> 931	<sup>E</sup> 7,804	<sup>E</sup> 7,660	<sup>E</sup> 144	<sup>E</sup> -230	<sup>E</sup> 58	<sup>E</sup> 18,309
August	<sup>E</sup> 9,960	<sup>E</sup> 447	<sup>E</sup> 10,406	<sup>E</sup> 4,803	<sup>E</sup> 15,210	<sup>E</sup> 961	<sup>E</sup> 913	<sup>E</sup> 7,405	<sup>E</sup> 7,799	<sup>E</sup> -395	<sup>E</sup> -1,071	<sup>E</sup> 538	<sup>E</sup> 18,298
8-Month Average	<sup>E</sup> 11,066	<sup>E</sup> 444	<sup>E</sup> 11,510	<sup>E</sup> 4,999	<sup>E</sup> 16,509	<sup>E</sup> 961	<sup>E</sup> 919	<sup>E</sup> 7,991	<sup>E</sup> 8,390	<sup>E</sup> -399	<sup>E</sup> 623	<sup>E</sup> 490	<sup>E</sup> 17,857
2019 8-Month Average	11,555	462	12,017	4,737	16,754	1,131	1,066	9,389	8,231	1,158	160	597	20,546
2018 8-Month Average	10,104	474	10,578	4,270	14,848	1,239	1,130	10,210	7,399	2,811	-1	492	20,520

<sup>a</sup> Crude oil production on leases, and natural gas processing plant production of natural gas liquids (ethane, propane, normal butane, isobutane, and natural gasoline). Through 1980, also includes natural gas processing plant production of finished petroleum products (aviation gasoline, distillate fuel oil, jet fuel, kerosene, motor gasoline, special naphthas, and miscellaneous products).

<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> Renewable fuels and oxygenate plant net production of fuel ethanol, biodiesel, other renewable fuels, natural gasoline, finished motor gasoline, and motor gasoline blending components. For 2009–2018, also includes oxygenates (excluding fuel ethanol).

<sup>f</sup> Refinery and blender net production minus refinery and blender net inputs. See Table 3.2.

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

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

<sup>i</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>j</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.

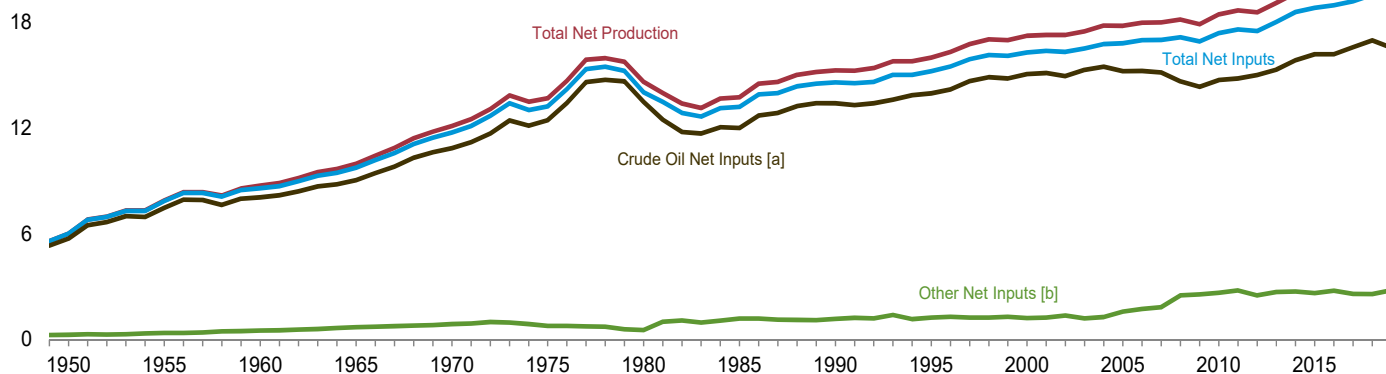
<sup>k</sup> Derived from the 2004 petroleum stocks value that excludes crude oil stocks on leases (1,628 million barrels), not the 2004 petroleum stocks value that includes crude oil stocks on leases (1,645 million barrels).

**Figure 3.2 Refinery and Blender Net Inputs and Net Production**

(Million Barrels per Day)

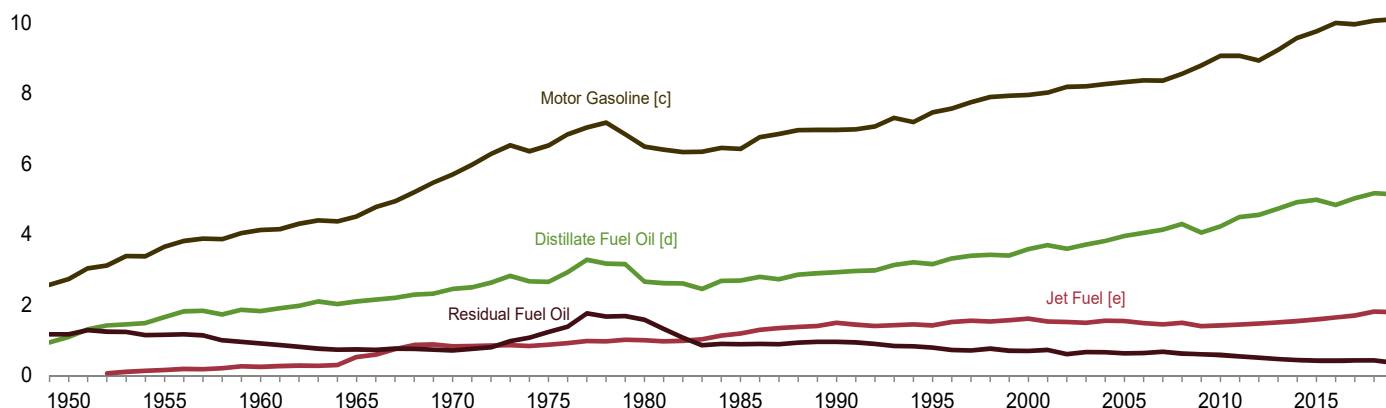
Net Inputs and Net Production, 1949–2019

24



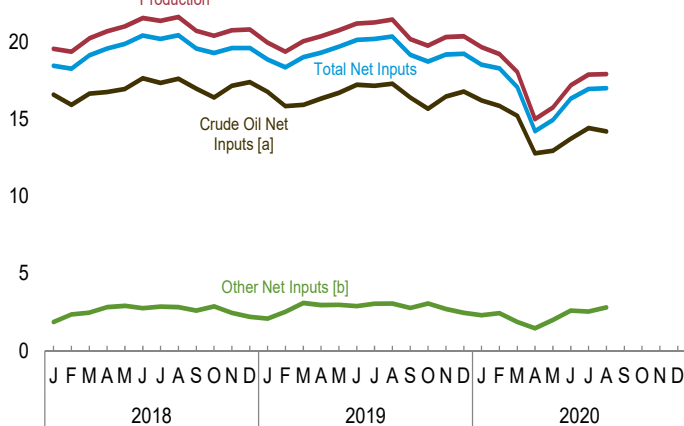
Net Production, Selected Products, 1949–2019

12



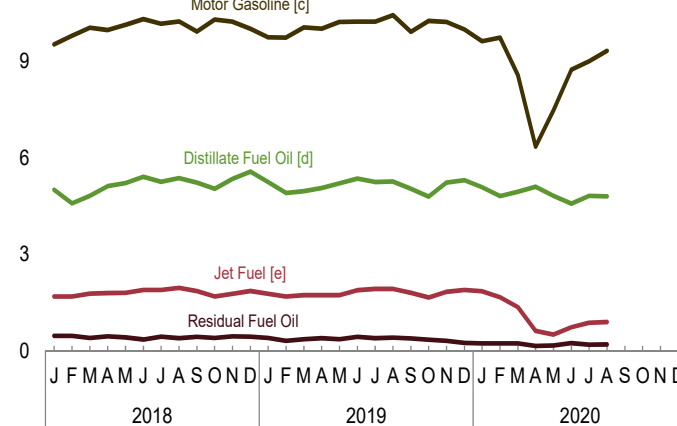
Net Inputs and Net Production, Monthly

25



Net Production, Selected Products, Monthly

12



[a] Includes lease condensate.

[b] Natural gas liquids and other liquids.

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

[d] Beginning in 2009, includes renewable diesel fuel (including biodiesel)

blended into distillate fuel oil.

[e] Beginning in 2005, includes kerosene-type jet fuel only.

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

Source: Table 3.2.

**Table 3.2 Refinery and Blender Net Inputs and Net Production**  
(Thousand Barrels per Day)

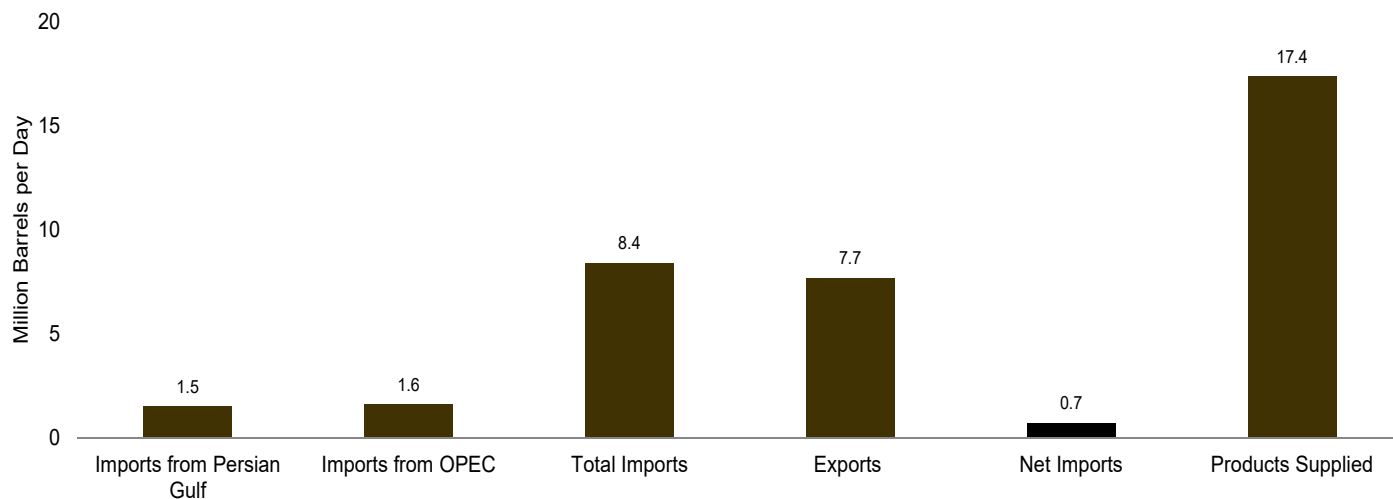
	Refinery and Blender Net Inputs <sup>a</sup>				Refinery and Blender Net Production <sup>b</sup>									
	Crude Oil <sup>c</sup>	Natural Gas Liquids <sup>d</sup>	Other Liquids <sup>e</sup>	Total	Distillate Fuel Oil <sup>f</sup>	Hydrocarbon Gas Liquids			Total <sup>h</sup>	Jet Fuel <sup>i</sup>	Motor Gasoline <sup>j</sup>	Residual Fuel Oil	Other Products <sup>k</sup>	Total
						Propane/Propylene								
						Propane	Propylene	Total <sup>g</sup>						
1950 Average	5,739	259	19	6,018	1,093	NA	NA	NA	80	( <sup>i</sup> )	2,735	1,165	947	6,019
1955 Average	7,480	345	32	7,857	1,651	NA	NA	NA	119	155	3,648	1,152	1,166	7,891
1960 Average	8,067	455	61	8,583	1,823	NA	NA	NA	212	241	4,126	908	1,420	8,729
1965 Average	9,043	618	88	9,750	2,096	NA	NA	NA	293	523	4,507	736	1,814	9,970
1970 Average	10,870	763	121	11,754	2,454	E 184	E 55	239	345	827	5,699	706	2,082	12,113
1975 Average	12,442	710	72	13,225	2,653	E 179	E 60	238	311	871	6,518	1,235	2,097	13,685
1980 Average	13,481	462	81	14,025	2,661	E 202	E 72	273	330	999	6,492	1,580	2,559	14,622
1985 Average	12,002	509	681	13,192	2,686	E 223	E 72	295	391	1,189	6,419	882	2,183	13,750
1990 Average	13,409	467	713	14,589	2,925	299	105	404	499	1,488	6,959	950	2,452	15,272
1995 Average	13,973	471	775	15,220	3,155	352	151	503	654	1,416	7,459	788	2,522	15,994
2000 Average	15,067	380	849	16,295	3,580	366	217	583	705	1,606	7,951	696	2,705	17,243
2001 Average	15,128	429	825	16,382	3,695	352	204	556	667	1,530	8,022	721	2,651	17,285
2002 Average	14,947	429	941	16,316	3,592	347	225	572	671	1,514	8,183	601	2,712	17,273
2003 Average	15,304	419	791	16,513	3,707	341	229	570	658	1,488	8,194	660	2,780	17,487
2004 Average	15,475	422	866	16,762	3,814	341	243	584	645	1,547	8,265	655	2,887	17,814
2005 Average	15,220	441	1,149	16,811	3,954	311	229	540	573	1,546	8,318	628	2,782	17,800
2006 Average	15,242	501	1,238	16,981	4,040	302	241	543	627	1,481	8,364	635	2,827	17,975
2007 Average	15,156	505	1,337	16,999	4,133	330	232	562	655	1,448	8,358	673	2,728	17,994
2008 Average	14,648	485	2,019	17,153	4,294	312	207	519	630	1,493	8,548	620	2,561	18,146
2009 Average	14,336	485	2,082	16,904	4,048	291	246	537	623	1,396	8,786	598	2,431	17,882
2010 Average	14,724	442	2,219	17,385	4,223	282	278	560	659	1,418	9,059	585	2,509	18,452
2011 Average	14,806	490	2,300	17,596	4,492	270	282	552	619	1,449	9,058	537	2,518	18,673
2012 Average	14,999	509	1,997	17,505	4,550	276	277	553	630	1,471	8,926	501	2,487	18,564
2013 Average	15,312	496	2,211	18,019	4,733	284	281	564	623	1,499	9,234	467	2,550	19,106
2014 Average	15,848	511	2,214	18,574	4,916	306	281	587	653	1,541	9,570	435	2,537	19,654
2015 Average	16,188	517	2,119	18,824	4,983	283	276	559	615	1,590	9,754	417	2,527	19,886
2016 Average	16,187	536	2,238	18,961	4,834	307	280	587	632	1,650	9,995	418	2,550	20,079
2017 Average	16,590	566	2,031	19,187	5,024	307	285	592	628	1,702	9,954	427	2,563	20,298
2018 January	16,599	630	1,233	18,463	5,006	296	304	600	393	1,687	9,529	467	2,483	19,565
February	15,936	629	1,718	18,283	4,584	295	274	568	409	1,688	9,797	462	2,440	19,380
March	16,665	556	1,923	19,144	4,823	295	276	571	632	1,781	10,053	403	2,550	20,240
April	16,766	497	2,326	19,589	5,120	307	286	593	800	1,795	9,974	450	2,563	20,703
May	16,969	454	2,465	19,887	5,214	300	292	591	855	1,804	10,138	415	2,602	21,028
June	17,666	456	2,309	20,430	5,410	321	286	607	874	1,893	10,314	348	2,724	21,563
July	17,357	442	2,414	20,213	5,257	320	286	607	870	1,894	10,174	444	2,742	21,382
August	17,623	504	2,316	20,443	5,369	310	293	604	880	1,955	10,243	391	2,790	21,629
September	16,991	565	2,035	19,591	5,230	296	294	590	650	1,856	9,927	429	2,639	20,732
October	16,412	687	2,196	19,295	5,035	279	294	574	464	1,691	10,301	397	2,522	20,411
November	17,162	746	1,704	19,612	5,350	294	314	608	395	1,769	10,240	450	2,558	20,762
December	17,409	732	1,474	19,615	5,576	303	313	616	373	1,856	10,020	440	2,561	20,826
Average	16,969	575	2,011	19,555	5,168	301	293	594	634	1,806	10,061	425	2,599	20,693
2019 January	R 16,783	R 675	R 1,415	18,873	R 5,250	297	292	589	R 368	1,771	R 9,747	398	R 2,448	R 19,981
February	R 15,846	R 592	R 1,935	R 18,372	R 4,905	257	289	545	R 429	1,689	R 9,744	R 309	R 2,303	R 19,379
March	R 15,935	R 512	R 2,580	R 19,027	R 4,968	288	261	549	629	1,728	R 10,060	357	R 2,323	R 20,065
April	R 16,341	R 486	R 2,482	R 19,309	R 5,059	295	272	567	R 804	1,728	R 10,020	R 389	R 2,374	R 20,374
May	R 16,719	460	R 2,519	R 19,699	R 5,212	295	283	577	867	1,729	R 10,229	363	2,362	R 20,763
June	R 17,236	431	R 2,469	R 20,136	R 5,351	300	290	591	859	1,883	R 10,236	430	R 2,454	R 21,212
July	R 17,175	448	R 2,593	R 20,216	R 5,246	292	286	579	852	1,922	10,240	390	R 2,632	R 21,282
August	R 17,297	481	R 2,580	20,358	5,266	295	284	579	R 806	1,924	R 10,437	410	R 2,613	R 21,456
September	R 16,403	601	R 2,178	R 19,182	5,035	272	282	553	613	1,799	R 9,916	383	R 2,454	R 20,199
October	15,681	R 712	R 2,357	R 18,749	R 4,794	252	281	533	409	1,653	R 10,259	340	R 2,308	R 19,764
November	16,482	R 744	R 1,972	R 19,197	R 5,231	294	287	581	272	1,833	R 10,229	R 314	R 2,449	R 20,328
December	16,793	R 716	R 1,735	R 19,244	5,309	316	280	596	348	1,890	R 9,992	R 249	R 2,589	R 20,377
Average	R 16,563	571	R 2,237	R 19,371	R 5,137	288	282	570	606	1,796	R 10,095	R 361	R 2,444	R 20,439
2020 January	16,231	699	1,608	18,538	5,085	297	269	566	388	1,855	9,626	229	2,491	19,674
February	15,867	638	1,793	18,298	4,812	280	234	514	381	1,666	9,742	229	2,407	19,237
March	15,226	498	1,363	17,088	4,951	279	245	525	621	1,359	8,575	232	2,328	18,067
April	12,786	318	1,134	14,238	5,101	230	264	494	683	619	6,352	145	2,106	15,005
May	12,958	336	1,660	14,953	4,821	234	258	492	671	505	7,477	167	2,118	15,760
June	R 13,732	R 402	R 2,202	R 16,336	R 4,580	R 249	R 255	R 504	R 710	R 731	R 8,745	R 239	R 2,204	R 17,209
July	E 14,438	F 353	RE 2,180	RF 16,970	E 4,823	NA	NA	RE 642	F 818	E 872	E 9,001	E 187	RE 2,200	RE 17,901
August	E 14,211	F 395	E 2,411	F 17,017	E 4,801	NA	NA	E 613	F 765	E 896	E 9,326	E 200	E 1,941	E 17,929
8-Month Average	E 14,429	E 454	E 1,795	E 16,678	E 4,872	NA	NA	E 544	E 631	E 1,061	E 8,605	E 203	E 2,223	E 17,597
2019 8-Month Average	16,676	510	2,325	19,511	5,160	290	282	572	704	1,798	10,093	381	2,441	20,577
2018 8-Month Average	16,958	520	2,091	19,569	5,103	306	287	593	717	1,813	10,030	422	2,614	20,699

<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> Includes lease condensate.  
<sup>d</sup> Ethane, propane, normal butane, isobutane, and natural gasoline (pentanes plus).  
<sup>e</sup> Unfinished oils (net). Beginning in 1981, also includes aviation gasoline blending components (net) and motor gasoline blending components (net). Beginning in 1993, also includes fuel ethanol. Beginning in 2009, also includes renewable fuels (excluding fuel ethanol), hydrogen, and other hydrocarbons. For 2009–2018, also includes oxygenates (excluding fuel ethanol).  
<sup>f</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.  
<sup>g</sup> Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures."  
<sup>h</sup> Ethane, propane, normal butane, isobutane, and refinery olefins (ethylene, propylene, butylene, and isobutylene).  
<sup>i</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

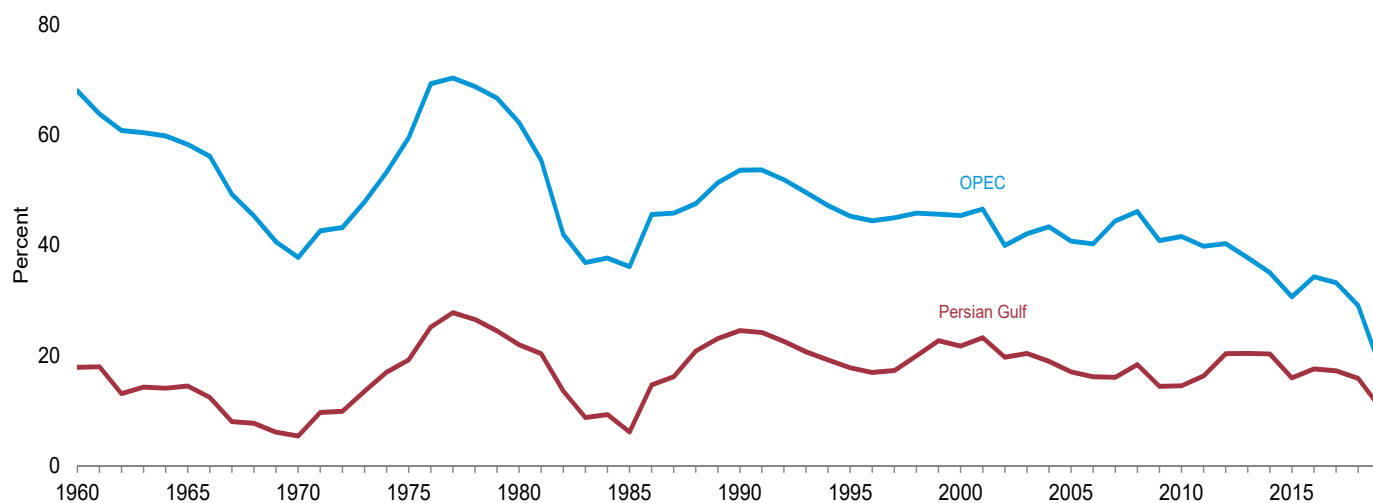
fuel is included in the products from which it was blended—gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other Products.")  
<sup>j</sup> Finished motor gasoline. Through 1963, also includes aviation gasoline and special naphthas. Beginning in 1993, 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: See end of section.

**Figure 3.3a Petroleum Trade: Overview**

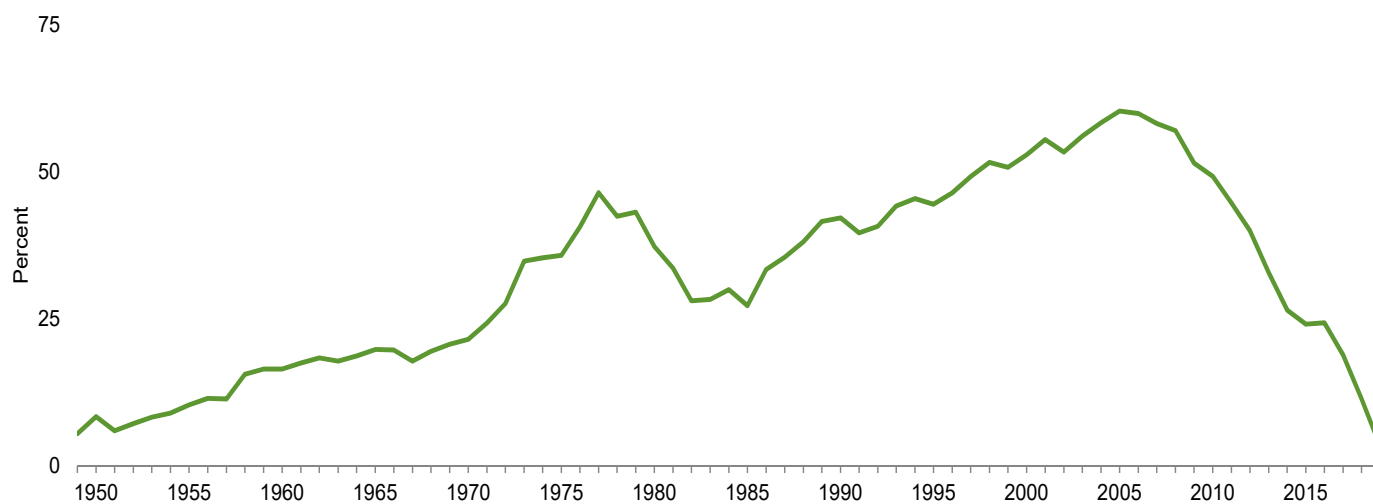
Overview, June 2020



Imports From OPEC and Persian Gulf as Share of Total Imports, 1960–2019



Net Imports as Share of Products Supplied, 1949–2019



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	19,178	8.9	25.6	61.5	49.2	14.5	41.6
2011 Average .....	1,861	4,555	11,436	2,986	8,450	18,896	9.9	24.1	60.5	44.7	16.3	39.8
2012 Average .....	2,156	4,271	10,598	3,205	7,393	18,482	11.7	23.1	57.3	40.0	20.3	40.3
2013 Average .....	2,009	3,720	9,859	3,621	6,237	18,967	10.6	19.6	52.0	32.9	20.4	37.7
2014 Average .....	1,875	3,237	9,241	4,176	5,065	19,100	9.8	16.9	48.4	26.5	20.3	35.0
2015 Average .....	1,507	2,894	9,449	4,738	4,711	19,532	7.7	14.8	48.4	24.1	15.9	30.6
2016 Average .....	1,766	3,446	10,055	5,261	4,795	19,692	9.0	17.5	51.1	24.3	17.6	34.3
2017 Average .....	1,746	3,366	10,144	6,376	3,768	19,952	8.8	16.9	50.8	18.9	17.2	33.2
2018 January .....	1,591	3,009	10,280	6,461	3,819	20,564	7.7	14.6	50.0	18.6	15.5	29.3
February .....	1,554	2,740	9,586	6,907	2,679	19,693	7.9	13.9	48.7	13.6	16.2	28.6
March .....	1,738	2,845	9,822	7,337	2,485	20,731	8.4	13.7	47.4	12.0	17.7	29.0
April .....	1,899	3,523	10,375	7,797	2,578	20,038	9.5	17.6	51.8	12.9	18.3	34.0
May .....	1,567	2,731	10,227	7,717	2,510	20,251	7.7	13.5	50.5	12.4	15.3	26.7
June .....	1,487	3,041	10,726	7,824	2,902	20,770	7.2	14.6	51.6	14.0	13.9	28.3
July .....	1,489	2,971	10,193	7,963	2,231	20,671	7.2	14.4	49.3	10.8	14.6	29.1
August .....	1,599	2,857	10,434	7,164	3,270	21,356	7.5	13.4	48.9	15.3	15.3	27.4
September .....	1,645	2,996	9,889	7,415	2,474	20,084	8.2	14.9	49.2	12.3	16.6	30.3
October .....	1,563	2,729	9,468	8,011	1,457	20,786	7.5	13.1	45.6	7.0	16.5	28.8
November .....	1,567	2,703	9,272	8,281	991	20,774	7.5	13.0	44.6	4.8	16.9	29.2
December .....	1,237	2,516	9,021	8,301	720	20,327	6.1	12.4	44.4	3.5	13.7	27.9
Average .....	1,578	2,888	9,943	7,601	2,341	20,512	7.7	14.1	48.5	11.4	15.9	29.0
2019 January .....	1,304	2,553	9,768	7,982	1,786	20,615	6.3	12.4	47.4	8.7	13.3	26.1
February .....	1,272	1,803	8,671	8,219	452	20,284	6.3	8.9	42.8	2.2	14.7	20.8
March .....	1,096	1,643	8,905	7,946	959	20,176	5.4	8.1	44.1	4.8	12.3	18.5
April .....	947	1,566	9,525	8,382	1,143	20,333	4.7	7.7	46.8	5.6	9.9	16.4
May .....	912	1,693	9,893	8,238	1,655	20,387	4.5	8.3	48.5	8.1	9.2	17.1
June .....	995	1,699	9,297	8,576	720	20,654	4.8	8.2	45.0	3.5	10.7	18.3
July .....	890	1,420	9,601	8,084	1,517	20,735	4.3	6.8	46.3	7.3	9.3	14.8
August .....	794	1,660	9,387	8,438	949	21,158	3.8	7.8	44.4	4.5	8.5	17.7
September .....	980	1,601	8,712	8,672	40	20,248	4.8	7.9	43.0	0.2	11.2	18.4
October .....	741	1,301	8,599	9,039	440	20,714	3.6	6.3	41.5	2.1	8.6	15.1
November .....	685	1,322	8,103	8,741	638	20,736	3.3	6.4	39.1	3.1	8.5	16.3
December .....	960	1,411	9,159	9,331	171	20,443	4.7	6.9	44.8	0.8	10.5	15.4
Average .....	963	1,639	9,141	8,471	670	20,543	4.7	8.0	44.5	3.3	10.5	17.9
2020 January .....	773	926	8,572	9,177	-605	19,905	3.9	4.7	43.1	-3.0	9.0	10.8
February .....	811	981	8,457	9,983	-1,526	19,839	4.1	4.9	42.6	-7.7	9.6	11.6
March .....	772	831	8,345	9,621	-1,276	18,284	4.2	4.5	45.6	-7.0	9.3	10.0
April .....	610	675	7,236	8,452	-1,216	14,691	4.2	4.6	49.3	-8.3	8.4	9.3
May .....	1,429	1,532	7,757	6,818	939	16,103	8.9	9.5	48.2	5.8	18.4	19.8
June .....	1,465	1,617	8,367	7,692	675	17,435	8.4	9.3	48.0	3.9	17.5	19.3
July .....	NA	NA	7,804	7,660	144	18,309	NA	NA	42.6	0.8	NA	NA
August .....	NA	NA	7,405	7,799	-395	18,298	NA	NA	40.5	-2.2	NA	NA
8-Month Average .....	NA	NA	7,991	8,390	-399	17,857	NA	NA	44.7	-2.2	NA	NA
2019 8-Month Average .....	1,024	1,755	9,389	8,231	1,158	20,546	5.0	8.5	45.7	5.6	10.9	18.7
2018 8-Month Average .....	1,616	2,965	10,210	7,399	2,811	20,520	7.9	14.4	49.8	13.7	15.8	29.0

<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.

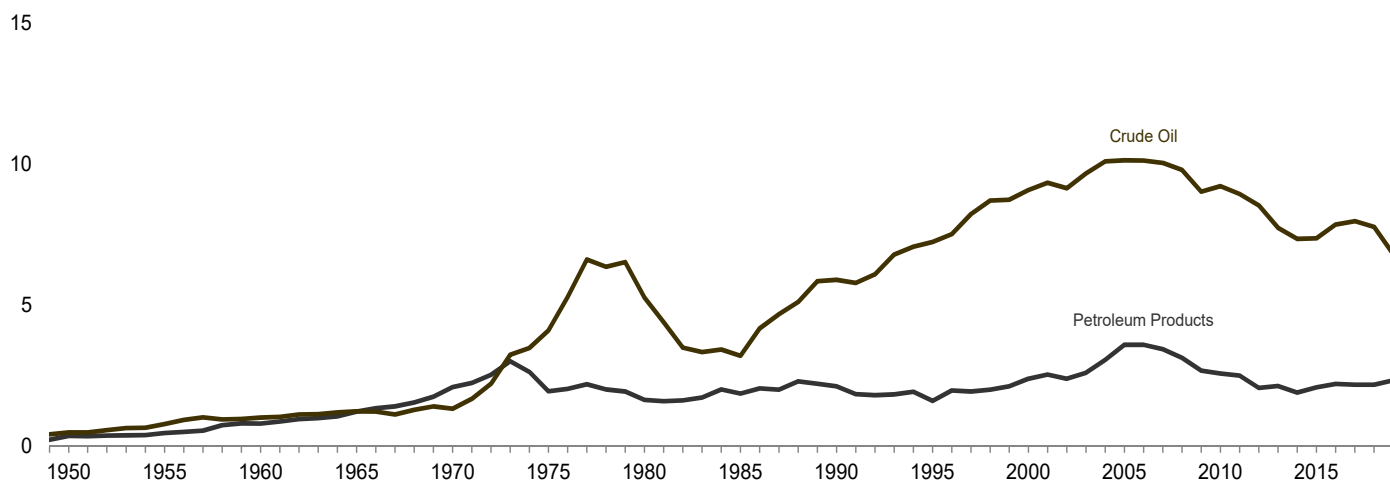
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#petroleum> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

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. • **1981–2019:** EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions. • **2020:** 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.

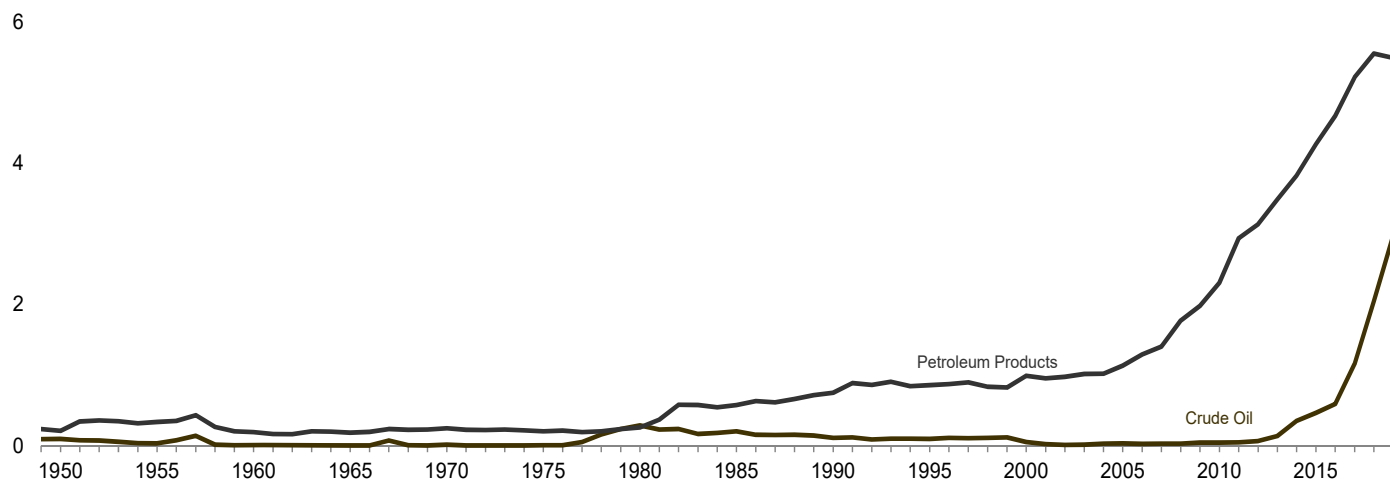
**Figure 3.3b Petroleum Trade: Imports and Exports by Type**

(Million Barrels per Day)

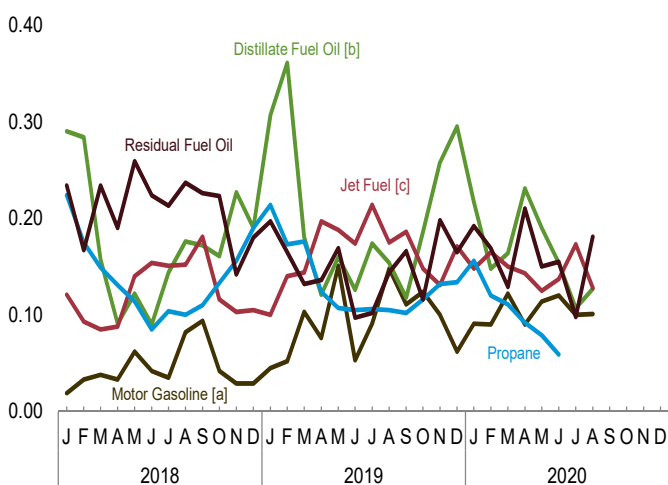
Imports Overview, 1949–2019



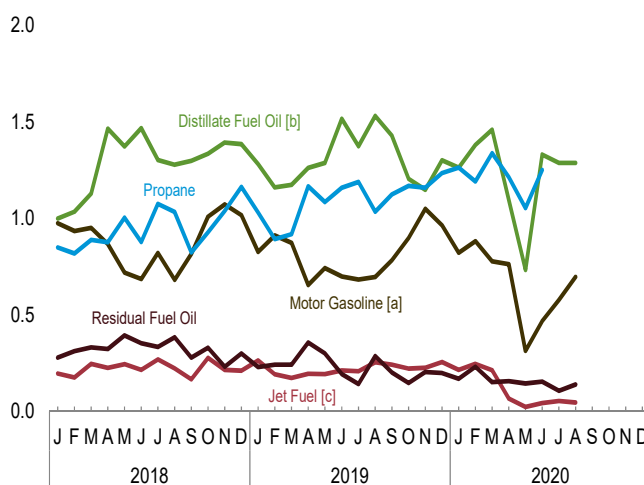
Exports Overview, 1949–2019



Imports, Selected Products, Monthly



Exports, Selected Products, Monthly



[a] Includes fuel ethanol blended into motor gasoline.

[b] Includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

[c] Includes kerosene-type jet fuel only.

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

Sources: Tables 3.3b and 3.3e.

**Table 3.3b Petroleum Trade: Imports by Type**  
(Thousand Barrels per Day)

	Crude Oil <sup>a</sup>		Distillate Fuel Oil	Hydrocarbon Gas Liquids				Jet Fuel <sup>e</sup>	Motor Gasoline <sup>f</sup>	Residual Fuel Oil	Other <sup>g</sup>	Total
	SPR <sup>b</sup>	Total		Propane/Propylene			Total <sup>d</sup>					
				Propane	Propylene	Total <sup>c</sup>						
1950 Average .....	--	487	7	NA	NA	--	--	( <sup>e</sup> )	(s)	329	27	850
1955 Average .....	--	782	12	NA	NA	--	--	( <sup>e</sup> )	13	417	24	1,248
1960 Average .....	--	1,015	35	NA	NA	NA	4	34	27	637	62	1,815
1965 Average .....	--	1,238	36	NA	NA	NA	21	81	28	946	119	2,468
1970 Average .....	--	1,324	147	NA	NA	26	58	144	67	1,528	150	3,419
1975 Average .....	--	4,105	155	NA	NA	60	185	133	184	1,223	70	6,056
1980 Average .....	44	5,263	142	NA	NA	84	226	80	140	939	120	6,909
1985 Average .....	118	3,201	200	NA	NA	67	235	39	381	510	501	5,067
1990 Average .....	27	5,894	278	NA	NA	115	197	108	342	504	695	8,018
1995 Average .....	--	7,230	193	95	6	102	192	106	265	187	662	8,835
2000 Average .....	8	9,071	295	154	7	161	256	162	427	352	897	11,459
2001 Average .....	11	9,328	344	140	6	145	250	148	454	295	1,051	11,871
2002 Average .....	16	9,140	267	137	8	145	199	107	498	249	1,069	11,530
2003 Average .....	--	9,665	333	159	9	168	271	109	518	327	1,041	12,264
2004 Average .....	77	10,088	325	198	11	209	305	127	496	426	1,377	13,145
2005 Average .....	52	10,126	329	219	14	233	374	190	603	530	1,562	13,714
2006 Average .....	8	10,118	365	201	26	228	360	186	475	350	1,854	13,707
2007 Average .....	7	10,031	304	162	20	182	276	217	413	372	1,856	13,468
2008 Average .....	19	9,783	213	162	23	185	275	103	302	349	1,891	12,915
2009 Average .....	56	9,013	225	126	21	147	194	81	223	331	1,623	11,691
2010 Average .....	--	9,213	228	93	29	121	179	98	134	366	1,574	11,793
2011 Average .....	--	8,935	179	82	28	110	183	69	105	328	1,637	11,436
2012 Average .....	--	8,527	126	85	31	116	170	55	44	256	1,421	10,598
2013 Average .....	--	7,730	155	103	24	127	182	84	45	225	1,438	9,859
2014 Average .....	--	7,344	195	89	19	108	143	94	49	173	1,242	9,241
2015 Average .....	--	7,363	200	104	19	124	156	132	71	192	1,335	9,449
2016 Average .....	--	7,850	147	120	22	142	180	147	59	205	1,468	10,055
2017 Average .....	--	7,969	151	133	23	156	196	160	32	189	1,448	10,144
2018 January .....	--	8,018	290	224	15	240	273	121	19	234	1,325	10,280
February .....	--	7,498	284	175	22	197	230	93	33	167	1,281	9,586
March .....	--	7,620	157	149	23	172	216	85	38	234	1,471	9,822
April .....	--	8,254	91	131	10	141	168	88	33	190	1,552	10,375
May .....	--	7,834	122	114	21	135	158	140	62	259	1,652	10,227
June .....	--	8,487	90	85	21	105	136	154	42	224	1,593	10,726
July .....	--	7,936	144	104	21	125	161	151	35	213	1,553	10,193
August .....	--	7,989	176	100	21	121	160	152	82	237	1,638	10,434
September .....	--	7,593	172	110	14	124	172	181	94	227	1,451	9,889
October .....	--	7,354	161	133	15	147	197	116	42	223	1,374	9,468
November .....	--	7,542	227	156	13	169	228	103	29	142	1,003	9,272
December .....	--	7,097	190	190	15	206	268	105	29	180	1,152	9,021
Average .....	--	7,768	175	139	18	157	197	124	45	211	1,422	9,943
2019 January .....	--	R 7,558	R 307	R 214	15	R 230	R 297	100	45	R 197	R 1,263	R 9,768
February .....	--	R 6,670	361	R 173	13	R 186	R 246	140	52	R 165	R 1,038	R 8,671
March .....	--	R 6,783	180	R 176	10	R 186	R 254	144	R 103	R 132	R 1,308	R 8,905
April .....	--	R 6,999	121	R 124	18	R 143	R 207	197	R 76	136	R 1,788	R 9,525
May .....	--	R 7,154	R 160	R 107	21	R 129	R 183	188	R 151	169	R 1,888	R 9,893
June .....	--	R 7,152	R 126	R 105	R 20	R 125	R 169	174	R 53	R 97	R 1,525	R 9,297
July .....	--	R 6,938	R 174	R 106	16	R 122	R 180	214	R 91	102	R 1,902	R 9,601
August .....	--	6,944	R 154	R 105	17	R 122	R 178	175	R 148	144	R 1,642	R 9,387
September .....	--	R 6,483	R 118	R 102	R 17	R 119	R 176	186	R 111	166	R 1,472	R 8,712
October .....	--	R 6,242	R 186	R 116	15	R 131	R 198	148	R 124	116	R 1,585	R 8,599
November .....	--	R 5,818	R 258	R 132	13	R 145	R 191	131	R 100	198	R 1,407	R 8,103
December .....	--	R 6,833	295	R 134	15	R 149	R 200	171	62	165	1,435	9,159
Average .....	--	R 6,801	R 202	R 133	R 16	R 149	R 207	164	R 94	R 149	R 1,525	R 9,141
2020 January .....	--	6,408	217	156	11	168	210	148	91	192	1,306	8,572
February .....	--	6,519	148	120	9	129	157	165	90	169	1,208	8,457
March .....	--	6,296	164	111	15	126	159	150	122	129	1,324	8,345
April .....	--	5,520	231	92	14	105	128	143	90	210	916	7,236
May .....	--	6,087	190	79	14	93	116	125	114	150	975	7,757
June .....	--	R 6,397	R 154	R 59	R 12	R 72	R 109	R 137	R 120	R 155	R 1,295	R 8,367
July .....	--	E 5,776	E 107	NA	NA	E 93	NA	E 173	E 100	E 98	NA	E 7,804
August .....	--	E 5,524	E 127	NA	NA	E 91	NA	E 128	E 101	E 181	NA	E 7,405
8-Month Average .....	--	E 6,063	E 167	NA	NA	E 110	NA	E 146	E 104	E 160	NA	E 7,991
2019 8-Month Average .....	--	7,029	196	139	16	155	214	167	91	143	1,550	9,389
2018 8-Month Average .....	--	7,957	169	135	19	154	187	123	43	221	1,511	10,210

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

<sup>b</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>c</sup> Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

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

<sup>e</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>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, petrochemical feedstocks, petroleum coke, unfinished oils, 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 1981, also includes motor gasoline blending components. Beginning in 1993, also includes fuel ethanol. Beginning in 2005, also includes naphtha-type jet fuel. Beginning in 2009, also includes renewable fuels (excluding fuel ethanol) and other hydrocarbons. For 2011–2018, also includes oxygenates (excluding fuel ethanol).

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. • 1981–2019: EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions. • 2020: 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>	Iraq	Kuwait <sup>c</sup>	Libya <sup>d</sup>	Nigeria <sup>e</sup>	Saudi Arabia <sup>c</sup>	United Arab Emirates	Venezuela	Other <sup>f</sup>	Total OPEC
1960 Average .....	( <sup>a</sup> )	( <sup>b</sup> )	22	182	( <sup>d</sup> )	( <sup>e</sup> )	84	NA	911	34	1,233
1965 Average .....	( <sup>a</sup> )	( <sup>b</sup> )	16	74	42	( <sup>e</sup> )	158	14	994	142	1,439
1970 Average .....	8	( <sup>b</sup> )	—	48	47	( <sup>e</sup> )	30	63	989	109	1,294
1975 Average .....	282	( <sup>b</sup> )	2	16	232	762	715	117	702	773	3,601
1980 Average .....	488	( <sup>b</sup> )	28	27	554	857	1,261	172	481	432	4,300
1985 Average .....	187	( <sup>b</sup> )	46	21	4	293	168	45	605	461	1,830
1990 Average .....	280	( <sup>b</sup> )	518	86	—	800	1,339	17	1,025	231	4,296
1995 Average .....	234	( <sup>b</sup> )	—	218	—	627	1,344	10	1,480	88	4,002
2000 Average .....	225	( <sup>b</sup> )	620	272	—	896	1,572	15	1,546	57	5,203
2001 Average .....	278	( <sup>b</sup> )	795	250	—	885	1,662	40	1,553	65	5,528
2002 Average .....	264	( <sup>b</sup> )	459	228	—	621	1,552	15	1,398	68	4,605
2003 Average .....	382	( <sup>b</sup> )	481	220	—	867	1,774	21	1,376	40	5,162
2004 Average .....	452	( <sup>b</sup> )	656	250	20	1,140	1,558	20	1,554	50	5,701
2005 Average .....	478	( <sup>b</sup> )	531	243	56	1,166	1,537	18	1,529	28	5,587
2006 Average .....	657	( <sup>b</sup> )	553	185	87	1,114	1,463	9	1,419	29	5,517
2007 Average .....	670	508	484	181	117	1,134	1,485	10	1,361	29	5,980
2008 Average .....	548	513	627	210	103	988	1,529	4	1,189	243	5,954
2009 Average .....	493	460	450	182	79	809	1,004	40	1,063	195	4,776
2010 Average .....	510	393	415	197	70	1,023	1,096	2	988	212	4,906
2011 Average .....	358	346	459	191	15	818	1,195	10	951	212	4,555
2012 Average .....	242	233	476	305	61	441	1,365	3	960	186	4,271
2013 Average .....	115	216	341	328	59	281	1,329	3	806	243	3,720
2014 Average .....	110	154	369	311	6	92	1,166	13	789	224	3,237
2015 Average .....	108	136	229	204	7	81	1,059	4	827	239	2,894
2016 Average .....	182	168	424	210	16	235	1,106	14	796	295	3,446
2017 Average .....	189	135	604	145	65	334	955	34	674	231	3,366
2018 January .....	234	71	699	100	76	349	744	20	528	187	3,009
February .....	119	34	617	177	38	386	667	63	472	167	2,740
March .....	107	10	721	131	79	153	760	107	561	216	2,845
April .....	208	169	834	107	87	275	904	43	632	265	3,523
May .....	134	118	583	49	40	102	872	45	559	229	2,731
June .....	147	193	421	92	75	267	847	109	643	246	3,041
July .....	243	188	485	63	44	43	876	30	625	375	2,971
August .....	198	146	421	83	19	66	1,039	43	592	250	2,857
September .....	200	73	485	36	61	113	1,043	67	708	211	2,996
October .....	178	94	377	—	32	182	1,108	63	570	124	2,729
November .....	162	28	392	101	(s)	180	1,001	59	563	218	2,703
December .....	183	—	226	16	121	177	930	55	576	232	2,516
Average .....	176	94	521	79	56	189	901	58	586	227	2,888
2019 January .....	98	<sup>R</sup> 10	429	21	60	181	<sup>R</sup> 777	27	<sup>R</sup> 634	317	<sup>R</sup> 2,553
February .....	51	—	422	106	36	33	663	32	289	171	1,803
March .....	136	10	275	129	25	142	666	3	69	187	1,643
April .....	125	43	265	61	88	137	583	22	114	128	1,566
May .....	142	46	366	57	111	243	462	22	11	233	1,693
June .....	122	123	355	26	55	251	579	16	(s)	171	1,699
July .....	75	—	360	20	39	193	454	36	—	243	1,420
August .....	63	47	249	46	66	380	461	19	—	329	1,660
September .....	49	71	400	—	69	245	458	121	—	189	1,601
October .....	23	75	252	—	86	128	444	22	—	271	1,301
November .....	34	25	283	41	90	211	355	<sup>R</sup> 5	—	278	<sup>R</sup> 1,322
December .....	16	11	436	43	34	163	430	—	—	238	1,411
Average .....	78	38	341	45	63	193	530	27	92	231	<sup>R</sup> 1,639
2020 January .....	17	10	299	46	67	64	407	7	—	8	926
February .....	33	33	262	46	36	76	488	6	—	(s)	981
March .....	12	—	290	23	—	54	445	4	—	3	831
April .....	1	30	140	—	—	57	431	13	—	3	675
May .....	1	50	242	—	—	69	1,158	2	—	9	1,532
June .....	7	66	146	34	—	103	1,221	39	—	2	1,617
6-Month Average .....	12	31	230	25	17	70	693	12	—	4	1,094
2019 6-Month Average .....	113	39	351	66	63	166	621	20	186	202	1,829
2018 6-Month Average .....	159	99	646	108	66	253	800	64	566	219	2,982

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

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

<sup>f</sup> Includes these countries for the dates indicated: Congo-Brazzaville (June 2018 forward), Ecuador (1973–1992 and November 2007–2019), Equatorial Guinea (May 2017 forward), Gabon (1975–1994 and July 2016 forward), Indonesia (1962–2008 and January–November 2016), Iran (1960 forward), and Qatar (1961–2018).

<sup>R</sup> = Revised. 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 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. • 1981–2019: EIA, *Petroleum Supply Annual*, annual reports. • 2020: EIA, *Petroleum Supply Monthly*, monthly reports.

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

	Brazil	Canada	Colombia	Ecuador <sup>a</sup>	Mexico	Nether-lands	Norway	Russia <sup>b</sup>	United Kingdom	U.S. Virgin Islands	Other	Total Non-OPEC
1960 Average .....	1	120	42	NA	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	(a)	71	19	17	14	14	406	1,052	2,454
1980 Average .....	3	455	4	(a)	533	2	144	1	176	388	903	2,609
1985 Average .....	61	770	23	(a)	816	58	32	8	310	247	913	3,237
1990 Average .....	49	934	182	(a)	755	55	102	45	189	282	1,128	3,721
1995 Average .....	8	1,332	219	97	1,068	15	273	25	383	278	1,136	4,833
2000 Average .....	51	1,807	342	128	1,373	30	343	72	366	291	1,453	6,257
2001 Average .....	82	1,828	296	120	1,440	43	341	90	324	268	1,511	6,343
2002 Average .....	116	1,971	260	110	1,547	66	393	210	478	236	1,539	6,925
2003 Average .....	108	2,072	195	145	1,623	87	270	254	440	288	1,622	7,103
2004 Average .....	104	2,138	176	245	1,665	101	244	298	380	330	1,763	7,444
2005 Average .....	156	2,181	196	283	1,662	151	233	410	396	328	2,130	8,127
2006 Average .....	193	2,353	155	278	1,705	174	196	369	272	328	2,168	8,190
2007 Average .....	200	2,455	155	203	1,532	128	142	414	277	346	1,636	7,489
2008 Average .....	258	2,493	200	(a)	1,302	168	102	465	236	320	1,416	6,961
2009 Average .....	309	2,479	276	(a)	1,210	140	108	563	245	277	1,307	6,915
2010 Average .....	272	2,535	365	(a)	1,284	108	89	612	256	253	1,112	6,887
2011 Average .....	253	2,729	433	(a)	1,206	100	113	624	159	186	1,077	6,881
2012 Average .....	226	2,946	433	(a)	1,035	99	75	477	149	12	874	6,327
2013 Average .....	151	3,142	389	(a)	919	89	54	460	147	—	786	6,138
2014 Average .....	160	3,388	318	(a)	842	85	45	330	117	—	720	6,004
2015 Average .....	215	3,765	395	(a)	758	57	61	371	123	—	811	6,554
2016 Average .....	167	3,780	483	(a)	669	60	76	441	122	(s)	812	6,610
2017 Average .....	224	4,054	362	(a)	682	62	79	389	111	—	814	6,778
2018 January .....	272	4,442	512	(a)	669	68	57	386	79	—	786	7,271
February .....	187	4,263	477	(a)	713	50	56	297	110	—	692	6,846
March .....	84	4,195	364	(a)	784	91	91	356	84	—	929	6,977
April .....	184	4,278	282	(a)	632	64	122	243	205	—	843	6,852
May .....	123	4,467	437	(a)	608	78	72	491	180	—	1,039	7,496
June .....	283	4,553	240	(a)	886	53	85	439	152	—	995	7,685
July .....	179	4,173	319	(a)	681	43	166	454	164	—	1,042	7,222
August .....	249	4,239	319	(a)	935	68	39	515	175	—	1,038	7,577
September .....	77	4,038	229	(a)	771	44	74	519	207	—	935	6,893
October .....	230	4,193	229	(a)	718	89	138	271	106	—	765	6,739
November .....	93	4,384	259	(a)	601	49	136	254	155	—	640	6,569
December .....	92	4,277	333	(a)	635	49	94	271	132	—	620	6,505
Average .....	171	4,292	333	(a)	719	62	94	375	146	—	862	7,055
2019 January .....	141	R 4,655	380	(a)	569	R 103	88	R 344	122	—	R 813	R 7,215
February .....	90	R 4,320	420	(a)	720	R 108	69	R 226	47	—	R 867	R 6,868
March .....	R 172	R 4,429	412	(a)	712	R 68	80	R 363	118	—	R 907	R 7,262
April .....	153	R 4,412	472	(a)	680	R 124	R 112	R 566	182	—	R 1,258	R 7,958
May .....	256	R 4,428	R 468	(a)	656	R 218	R 147	R 564	266	—	R 1,198	R 8,200
June .....	213	R 4,398	395	(a)	R 574	R 88	R 190	R 534	156	—	R 1,050	R 7,598
July .....	338	R 4,674	R 379	(a)	670	R 121	R 51	R 496	182	—	R 1,270	R 8,181
August .....	197	R 4,379	R 384	(a)	744	R 138	R 94	R 617	146	—	R 1,027	R 7,726
September .....	186	R 4,285	283	(a)	589	R 121	123	R 486	179	—	R 859	R 7,111
October .....	285	R 4,422	266	(a)	R 548	95	R 40	675	R 130	—	R 838	R 7,298
November .....	125	R 3,963	284	(a)	705	R 96	46	R 649	139	—	R 774	R 6,782
December .....	143	4,784	340	(a)	641	76	48	696	81	—	939	R 7,749
Average .....	R 193	R 4,432	R 373	(a)	650	R 113	R 91	R 520	R 146	—	R 984	R 7,502
2020 January .....	101	4,505	337	242	854	48	1	601	109	—	848	7,646
February .....	134	4,583	343	236	804	64	—	614	74	—	624	7,476
March .....	120	4,366	322	260	801	114	18	645	62	—	805	7,514
April .....	104	4,088	277	176	631	93	16	408	54	—	713	6,561
May .....	110	3,682	250	58	889	24	44	350	101	—	716	6,225
June .....	159	3,760	369	112	849	98	99	551	87	—	667	6,751
6-Month Average .....	121	4,162	316	180	805	74	30	528	82	—	730	7,028
2019 6-Month Average .....	172	4,443	424	(a)	651	119	115	435	150	—	1,016	7,525
2018 6-Month Average .....	188	4,367	385	(a)	715	68	81	370	135	—	883	7,193

<sup>a</sup> Ecuador was a member of OPEC from 1973–1992 and November 2007–2019. For those time periods, Ecuador is included in "Total OPEC" on Table 3.3c.

<sup>b</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.

R=Revised. 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. • 1981–2019: EIA, *Petroleum Supply Annual*, annual reports. • 2020: EIA, *Petroleum Supply Monthly*, monthly reports.

**Table 3.3e Petroleum Trade: Exports by Type**  
(Thousand Barrels per Day)

	Crude Oil <sup>a</sup>	Distillate Fuel Oil	Hydrocarbon Gas Liquids		Jet Fuel <sup>d</sup>	Motor Gasoline <sup>e</sup>	Residual Fuel Oil	Other <sup>f</sup>	Total
			Propane <sup>b</sup>	Total <sup>c</sup>					
1950 Average	95	34	NA	4	(d)	68	44	58	305
1955 Average	32	67	NA	12	(s)	95	93	69	368
1960 Average	8	27	NA	8	(s)	37	51	71	202
1965 Average	3	10	NA	21	3	2	41	108	187
1970 Average	14	2	13	27	6	1	54	154	259
1975 Average	6	1	13	26	2	2	15	158	209
1980 Average	287	3	10	21	1	1	33	197	544
1985 Average	204	67	48	64	13	10	197	225	781
1990 Average	109	109	28	41	43	55	211	287	857
1995 Average	95	183	38	59	26	104	136	12	949
2000 Average	50	173	53	78	32	144	139	46	1,040
2001 Average	20	119	31	45	29	133	191	433	971
2002 Average	9	112	55	67	15	124	177	479	984
2003 Average	12	107	37	59	20	125	197	506	1,027
2004 Average	27	110	28	45	40	124	205	497	1,048
2005 Average	32	138	37	60	53	136	251	496	1,165
2006 Average	25	215	45	68	41	142	283	544	1,317
2007 Average	27	268	42	70	41	127	330	569	1,433
2008 Average	29	528	53	101	61	172	355	555	1,802
2009 Average	44	587	85	139	69	195	415	574	2,024
2010 Average	42	656	109	164	84	296	405	706	2,353
2011 Average	47	854	124	249	97	479	424	835	2,986
2012 Average	67	1,007	171	314	132	409	388	886	3,205
2013 Average	134	1,134	302	468	156	373	362	994	3,621
2014 Average	351	1,101	423	703	163	442	364	1,052	4,176
2015 Average	465	1,176	615	966	168	476	326	1,161	4,738
2016 Average	591	1,179	799	1,211	175	635	298	1,171	5,261
2017 Average	1,158	1,381	914	1,404	184	749	308	1,192	6,376
2018 January	1,362	999	849	1,456	197	975	279	1,194	6,461
February	1,735	1,034	818	1,436	176	934	313	1,278	6,907
March	1,969	1,128	889	1,427	247	951	332	1,281	7,337
April	1,919	1,464	876	1,670	226	867	323	1,329	7,797
May	2,067	1,372	1,003	1,753	245	720	394	1,167	7,717
June	2,279	1,467	877	1,619	215	686	353	1,205	7,824
July	2,307	1,302	1,075	1,663	269	821	334	1,267	7,963
August	1,859	1,278	1,033	1,660	223	681	384	1,079	7,164
September	2,015	1,298	823	1,582	166	815	279	1,260	7,415
October	2,256	1,334	928	1,614	277	1,009	330	1,190	8,011
November	2,400	1,392	1,038	1,659	215	1,072	231	1,313	8,281
December	2,391	1,385	1,163	1,671	211	1,017	301	1,325	8,301
Average	2,048	1,289	949	1,602	223	879	321	1,240	7,601
2019 January	R 2,643	R 1,280	R 1,030	R 1,561	R 264	R 826	R 230	R 1,178	R 7,982
February	R 2,915	R 1,160	R 892	R 1,517	R 192	R 912	R 242	R 1,281	R 8,219
March	R 2,673	R 1,173	R 918	R 1,652	R 173	R 873	R 243	R 1,159	R 7,946
April	R 2,911	R 1,261	R 1,166	R 1,923	R 195	R 655	R 357	R 1,081	R 8,382
May	R 2,959	R 1,287	R 1,085	R 1,802	R 194	R 742	R 301	R 954	R 8,238
June	R 3,100	R 1,516	R 1,158	R 1,860	R 213	R 699	R 194	R 994	R 8,576
July	R 2,706	R 1,374	R 1,188	R 1,893	209	R 683	142	R 1,077	R 8,084
August	R 2,755	R 1,530	R 1,035	R 1,832	254	R 696	R 287	R 1,084	R 8,438
September	R 3,093	R 1,427	R 1,124	R 1,885	R 243	R 783	R 202	R 1,040	R 8,672
October	R 3,412	R 1,205	R 1,168	R 2,081	222	R 898	R 148	R 1,074	R 9,039
November	R 3,080	R 1,148	R 1,159	R 1,981	R 226	R 1,049	R 204	R 1,053	R 8,741
December	R 3,537	R 1,301	R 1,235	R 1,955	R 256	R 964	R 199	R 1,119	R 9,331
Average	R 2,982	R 1,306	R 1,098	R 1,830	R 220	R 815	R 229	R 1,090	R 8,471
2020 January	3,251	1,263	1,263	2,163	215	822	169	1,294	9,177
February	3,708	1,380	1,191	2,202	246	881	231	1,335	9,983
March	3,557	1,459	1,337	2,139	214	777	152	1,325	9,621
April	3,077	1,096	1,213	2,067	66	762	157	1,226	8,452
May	2,929	733	1,053	1,846	23	314	145	828	6,818
June	R 2,753	R 1,330	R 1,250	R 2,032	R 44	R 468	R 154	R 912	R 7,692
July	E 2,867	E 1,287	NA	NA	E 55	E 577	E 107	NA	E 7,660
August	E 2,908	E 1,287	NA	NA	E 47	E 696	E 139	NA	E 7,799
8-Month Average	E 3,128	E 1,228	NA	NA	E 113	E 661	E 156	NA	E 8,390
2019 8-Month Average	2,830	1,324	1,060	1,757	212	760	249	1,099	8,231
2018 8-Month Average	1,938	1,256	929	1,587	225	829	339	1,224	7,399

<sup>a</sup> Includes lease condensate.  
<sup>b</sup> Through 1983, also includes 40% of "Butane-Propane Mixtures." Through 2012, also includes propylene.  
<sup>c</sup> Ethane, propane, normal butane, isobutane, and natural gasoline (pentanes plus). Through 2012, also includes refinery olefins (ethylene, propylene, butylene, and isobutylene).  
<sup>d</sup> Beginning in 1965, includes kerosene-type jet fuel. (Through 1964, kerosene-type jet fuel is included with kerosene in "Other.") For 1953–2004, also includes naphtha-type jet fuel. (Through 1952, naphtha-type jet fuel is included in the products from which it was blended: motor gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other.")  
<sup>e</sup> Finished motor gasoline. Through 1952, also includes naphtha-type jet fuel. Through 1963, also includes aviation gasoline and special naphthas. Through 1980, also includes motor gasoline blending components.  
<sup>f</sup> Asphalt and road oil, kerosene, lubricants, petrochemical feedstocks, petroleum coke, unfinished oils, 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 1981, also includes

motor gasoline blending components. Beginning in 2005, also includes naphtha-type jet fuel. For 2009–2018, also includes oxygenates (excluding fuel ethanol). Beginning in 2010, also includes fuel ethanol. Beginning in 2011, also includes renewable fuels (excluding fuel ethanol).  
R=Revised. E=Estimate. NA=Not available. (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. • 1981–2019: EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions. • 2020: 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 3.3f Petroleum Trade: Exports by Country of Destination**  
(Thousand Barrels per Day)

	Brazil	Canada	China	India	Japan	Mexico	Nether-lands	Singa-pore	South Korea	United Kingdom	Other	Total
1960 Average .....	4	34	NA	NA	62	18	6	NA	NA	12	NA	202
1965 Average .....	3	26	NA	NA	40	27	10	NA	NA	12	NA	187
1970 Average .....	7	31	NA	NA	69	33	15	NA	NA	12	NA	259
1975 Average .....	6	22	NA	1	27	42	23	NA	NA	7	NA	209
1980 Average .....	4	108	—	1	32	28	23	6	2	7	335	544
1985 Average .....	3	74	—	2	108	61	44	24	27	14	424	781
1990 Average .....	2	91	—	6	92	89	54	15	60	11	438	857
1995 Average .....	16	73	2	3	76	125	33	46	57	14	505	949
2000 Average .....	28	110	3	3	90	358	42	36	20	10	342	1,040
2001 Average .....	23	112	6	3	62	274	45	67	14	13	352	971
2002 Average .....	26	106	14	3	74	254	23	81	11	12	380	984
2003 Average .....	27	141	24	7	69	228	15	51	10	6	447	1,027
2004 Average .....	27	158	13	11	63	209	36	41	12	14	464	1,048
2005 Average .....	39	181	12	11	56	268	25	43	16	21	492	1,165
2006 Average .....	42	159	11	8	58	255	83	45	21	28	607	1,317
2007 Average .....	46	189	14	14	54	279	81	71	16	9	660	1,433
2008 Average .....	54	264	13	10	54	333	131	77	18	17	830	1,802
2009 Average .....	55	223	44	30	58	322	192	115	23	33	928	2,024
2010 Average .....	123	233	52	10	88	448	165	128	13	19	1,073	2,353
2011 Average .....	157	351	73	17	79	570	248	121	15	35	1,320	2,986
2012 Average .....	166	416	85	36	89	565	239	115	16	41	1,435	3,205
2013 Average .....	179	549	129	41	117	532	274	136	13	36	1,616	3,621
2014 Average .....	217	809	89	70	150	559	241	124	46	53	1,817	4,176
2015 Average .....	188	955	191	78	166	690	226	122	65	89	1,968	4,738
2016 Average .....	260	935	203	140	250	880	265	147	108	92	1,980	5,261
2017 Average .....	395	871	447	200	350	1,081	251	210	176	186	2,209	6,376
2018 January .....	363	997	523	141	407	1,137	275	193	56	155	2,215	6,461
February .....	349	1,135	606	203	323	1,154	238	232	175	223	2,268	6,907
March .....	399	959	703	400	318	1,261	230	94	238	305	2,429	7,337
April .....	400	1,115	558	205	350	1,238	369	218	213	319	2,812	7,797
May .....	308	1,162	494	268	279	1,067	229	291	377	265	2,977	7,717
June .....	450	1,062	554	500	344	1,008	295	223	451	260	2,678	7,824
July .....	354	1,127	513	241	495	1,343	322	125	413	233	2,797	7,963
August .....	358	933	130	291	443	1,088	301	176	478	291	2,675	7,164
September .....	380	965	52	265	572	1,153	418	200	385	267	2,756	7,415
October .....	554	1,023	107	378	459	1,358	462	176	555	303	2,637	8,011
November .....	401	875	62	308	789	1,354	503	263	445	267	3,011	8,281
December .....	476	937	203	362	807	1,169	399	43	772	372	2,761	8,301
Average .....	400	1,024	374	297	466	1,194	337	185	382	272	2,670	7,601
2019 January .....	R 457	R 878	R 93	R 401	R 646	R 1,177	R 620	R 37	R 339	R 375	R 2,957	R 7,982
February .....	R 328	R 1,163	R 177	R 455	R 284	R 1,234	R 442	R 184	R 607	R 368	R 2,977	R 8,219
March .....	R 564	R 944	R 129	R 673	R 505	R 1,210	R 372	R 140	R 506	R 263	R 2,640	R 7,946
April .....	R 428	R 1,155	R 80	R 575	R 516	R 1,197	R 440	R 119	R 397	R 293	R 3,181	R 8,382
May .....	R 428	R 1,030	R 300	R 469	R 580	R 1,018	R 294	R 124	R 501	R 372	R 3,121	R 8,238
June .....	R 565	R 861	R 424	R 438	R 440	R 993	R 525	R 82	R 807	R 286	R 3,155	R 8,576
July .....	R 466	R 979	R 286	R 231	R 589	R 1,165	R 355	R 79	R 759	R 269	R 2,905	R 8,084
August .....	R 443	R 1,052	R 300	R 417	R 574	R 1,043	R 373	R 63	R 616	R 383	R 3,174	R 8,438
September .....	585	R 1,013	R 317	R 396	R 633	R 1,056	478	R 149	R 606	R 322	R 3,116	R 8,672
October .....	R 446	R 1,190	36	R 586	R 558	R 1,208	553	R 137	R 618	285	R 3,423	R 9,039
November .....	R 476	R 1,148	133	R 400	R 595	R 1,355	R 360	168	R 613	R 371	R 3,122	R 8,741
December .....	R 493	R 1,026	R 78	R 480	R 709	R 1,242	R 595	R 237	R 590	R 439	R 3,441	R 9,331
Average .....	R 474	R 1,035	R 196	R 460	R 555	R 1,158	R 451	R 126	R 580	R 336	R 3,102	R 8,471
2020 January .....	462	1,253	98	498	683	1,168	471	150	758	394	3,243	9,177
February .....	546	1,212	82	525	481	1,135	671	280	492	567	3,991	9,983
March .....	512	1,002	251	546	714	1,244	460	248	427	414	3,803	9,621
April .....	410	862	369	458	635	872	380	472	375	290	3,328	8,452
May .....	275	698	1,450	350	489	536	301	147	348	253	1,969	6,818
June .....	299	785	906	559	471	826	411	253	392	303	2,488	7,692
6-Month Average .....	417	968	530	489	580	963	447	257	466	369	3,130	8,615
2019 6-Month Average .....	464	1,003	200	502	499	1,137	449	113	524	326	3,004	8,221
2018 6-Month Average .....	378	1,070	573	287	337	1,144	273	208	252	255	2,566	7,342

R=Revised. NA=Not available. —=No data reported.

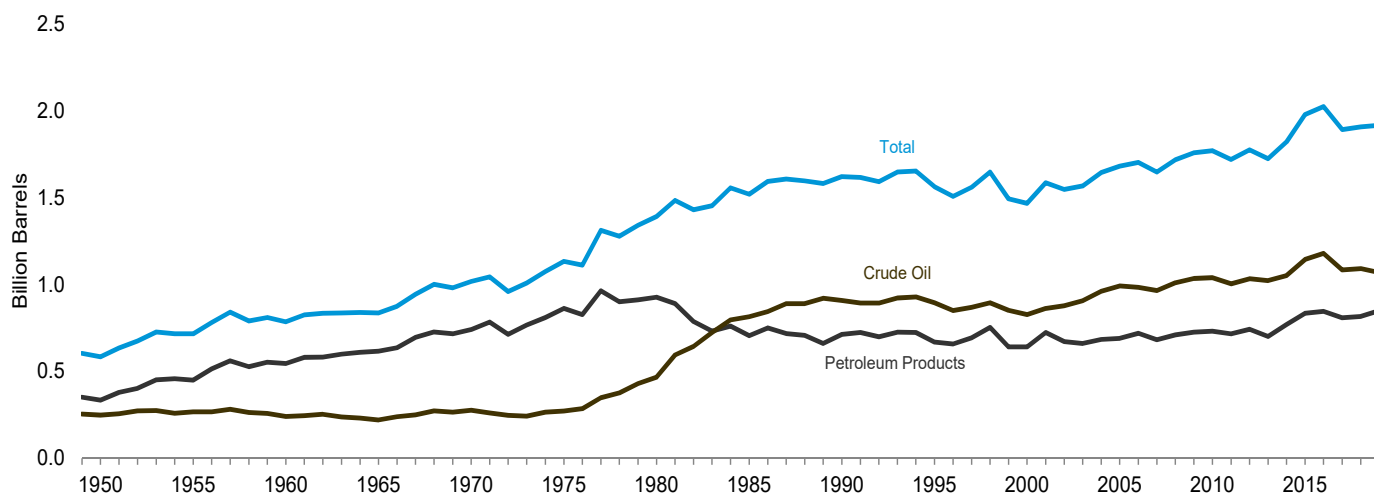
Notes: • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#petroleum> (Excel and CSV files) for all available annual data beginning in 1960 and monthly data beginning in 1981.

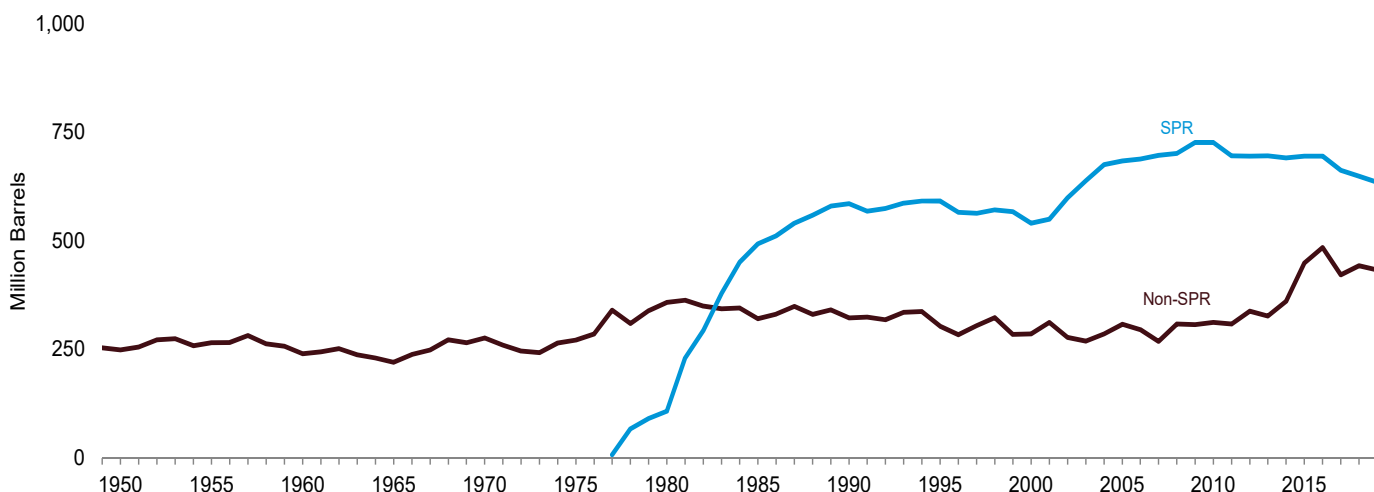
Sources: • **1960–1972:** Bureau of Mines, *Minerals Yearbook*, annual reports. • **1973–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), *Energy Data Reports, Petroleum Statement, Annual*, annual reports. • **1981–2019:** EIA, *Petroleum Supply Annual*, annual reports. • **2020:** EIA, *Petroleum Supply Monthly*, monthly reports.

**Figure 3.4 Petroleum Stocks**

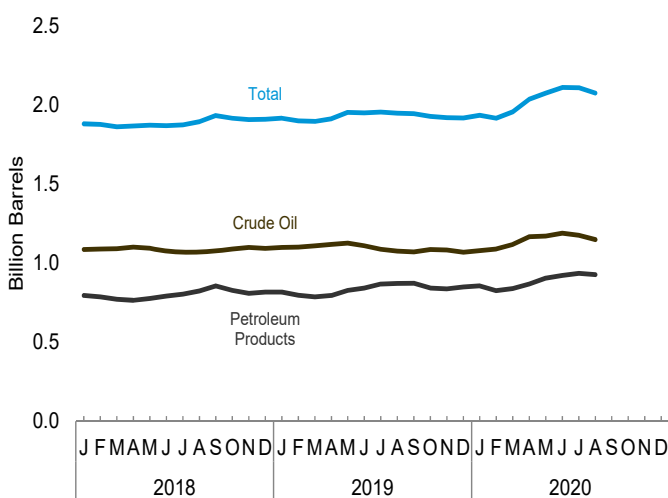
Overview, 1949–2019



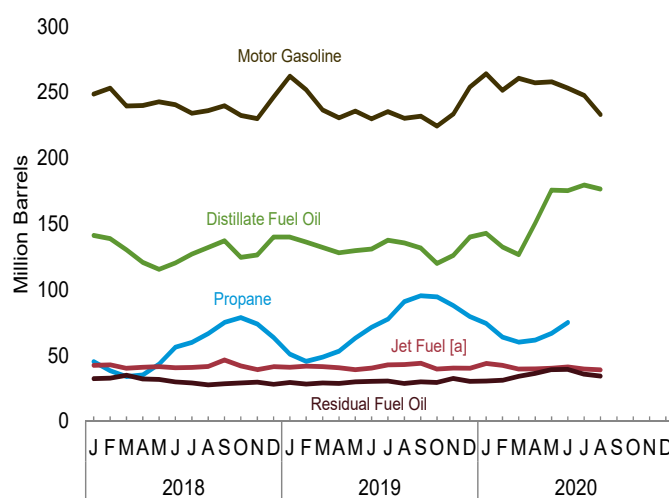
SPR and Non-SPR Crude Oil Stocks, 1949–2019



Overview, Monthly



Selected Products, Monthly



[a] Includes kerosene-type jet fuel only.

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>	Hydrocarbon Gas Liquids				Jet Fuel <sup>i</sup>	Motor Gasoline <sup>j</sup>	Residual Fuel Oil <sup>k</sup>	Other <sup>l</sup>	Total
	SPR <sup>b</sup>	Non-SPR <sup>c,d</sup>	Total <sup>d</sup>		Propane/Propylene			Total <sup>h</sup>					
					Propane	Propylene <sup>f</sup>	Total <sup>g</sup>						
1950 Year .....	--	248	248	72	NA	NA	NA	2	( <sup>i</sup> )	116	41	104	583
1955 Year .....	--	266	266	111	NA	NA	NA	7	3	165	39	123	715
1960 Year .....	--	240	240	138	NA	NA	NA	23	7	195	45	137	785
1965 Year .....	--	220	220	155	NA	NA	NA	35	19	175	56	176	836
1970 Year .....	--	276	276	195	NA	NA	NA	44	74	28	209	54	1,018
1975 Year .....	--	271	271	209	NA	NA	NA	82	133	30	235	74	1,133
1980 Year .....	108	358	466	205	NA	NA	NA	71	137	42	261	92	1,392
1985 Year .....	493	321	814	144	NA	NA	NA	39	82	40	223	50	1,519
1990 Year .....	586	323	908	132	NA	NA	NA	49	104	52	220	49	1,621
1995 Year .....	592	303	895	130	NA	NA	NA	43	100	40	202	37	1,563
2000 Year .....	541	286	826	118	NA	NA	NA	41	88	45	196	36	1,468
2001 Year .....	550	312	862	145	NA	NA	NA	66	128	42	210	41	1,586
2002 Year .....	599	278	877	134	NA	NA	NA	53	113	39	209	31	1,548
2003 Year .....	638	269	907	137	NA	NA	NA	50	101	39	207	38	1,568
2004 Year .....	676	286	961	126	NA	NA	NA	55	111	40	218	42	1,645
2005 Year .....	685	308	992	136	NA	NA	NA	57	117	42	208	37	1,682
2006 Year .....	689	296	984	144	NA	NA	NA	62	125	39	212	42	1,703
2007 Year .....	697	268	965	134	NA	NA	NA	52	106	39	218	39	1,648
2008 Year .....	702	308	1,010	146	NA	NA	NA	55	127	38	214	36	1,719
2009 Year .....	727	307	1,034	166	NA	NA	NA	50	113	43	223	37	1,758
2010 Year .....	727	312	1,039	164	46	R 2	R 47	R 118	43	219	41	145	R 1,770
2011 Year .....	696	308	1,004	149	48	R 2	R 50	R 121	41	223	34	146	R 1,720
2012 Year .....	695	338	1,033	135	63	R 2	R 64	R 148	40	231	34	154	R 1,775
2013 Year .....	696	327	1,023	128	40	R 1	R 42	R 121	37	228	38	149	R 1,724
2014 Year .....	691	361	1,052	136	72	R 2	R 74	R 170	38	240	34	151	R 1,822
2015 Year .....	695	449	1,144	161	91	R 2	R 93	R 192	40	235	42	164	R 1,979
2016 Year .....	695	485	1,180	166	77	R 2	R 79	R 196	43	239	41	161	R 2,025
2017 Year .....	663	422	1,084	146	62	R 2	R 64	R 187	41	237	29	167	R 1,892
2018 January .....	664	421	1,085	141	45	R 2	R 47	R 153	43	249	32	177	R 1,879
February .....	665	424	1,089	139	39	R 1	R 40	R 137	43	253	33	181	R 1,875
March .....	665	425	1,090	130	34	R 1	R 35	R 136	40	240	35	190	R 1,861
April .....	664	437	1,101	121	35	R 1	R 37	R 142	41	240	32	188	R 1,865
May .....	660	434	1,094	116	44	R 1	R 45	R 159	42	243	32	185	R 1,870
June .....	660	415	1,075	121	57	R 1	R 58	R 179	41	241	30	181	R 1,867
July .....	660	410	1,070	127	60	R 2	R 62	R 194	41	234	29	177	R 1,873
August .....	660	408	1,068	132	67	R 2	R 68	R 212	42	236	28	174	R 1,892
September .....	660	417	1,077	137	75	R 2	R 77	R 223	47	240	29	178	R 1,931
October .....	655	434	1,089	125	79	R 2	R 81	R 222	42	233	29	176	R 1,915
November .....	650	449	1,099	127	74	R 2	R 76	R 205	39	230	30	178	R 1,907
December .....	649	443	1,092	140	64	R 2	R 66	R 184	42	247	28	176	R 1,908
2019 January .....	649	449	1,098	140	51	1	R 53	R 161	41	R 262	R 30	182	R 1,914
February .....	649	452	1,101	136	R 46	1	R 47	R 151	42	R 252	28	R 187	R 1,897
March .....	649	459	1,108	132	R 49	2	R 51	R 160	42	R 237	29	R 186	R 1,894
April .....	649	R 470	R 1,118	128	53	2	55	R 175	41	R 231	R 29	190	R 1,912
May .....	645	R 481	R 1,126	130	63	2	65	202	39	236	30	189	R 1,952
June .....	645	R 463	R 1,108	131	72	2	73	224	41	230	30	184	R 1,949
July .....	645	442	R 1,086	138	78	2	80	R 238	43	235	31	R 182	1,954
August .....	645	R 430	R 1,075	136	91	2	93	256	43	230	29	177	1,946
September .....	645	426	R 1,070	132	96	3	98	263	44	232	30	172	R 1,943
October .....	641	R 443	1,085	120	95	2	97	253	40	R 224	30	176	R 1,927
November .....	635	R 446	R 1,081	126	88	2	90	232	41	234	33	172	R 1,918
December .....	635	433	1,068	140	80	2	81	212	40	254	31	172	1,917
2020 January .....	635	443	1,078	143	75	2	76	195	44	264	31	179	1,934
February .....	635	454	1,089	133	64	1	65	179	43	252	31	188	1,914
March .....	635	482	1,117	127	60	1	62	181	40	261	34	196	1,956
April .....	638	529	1,167	151	62	1	63	196	40	257	37	188	2,035
May .....	648	521	1,169	176	67	1	68	210	40	258	39	181	2,074
June .....	656	R 532	R 1,188	R 175	R 75	R 2	R 77	R 234	R 42	253	R 40	177	R 2,109
July .....	E 656	E 518	E 1,174	E 180	NA	NA	E 87	RF 256	E 40	E 248	E 36	RE 175	E 2,108
August .....	E 648	E 500	E 1,148	E 177	NA	NA	E 96	F 274	E 39	E 233	E 34	E 169	E 2,074

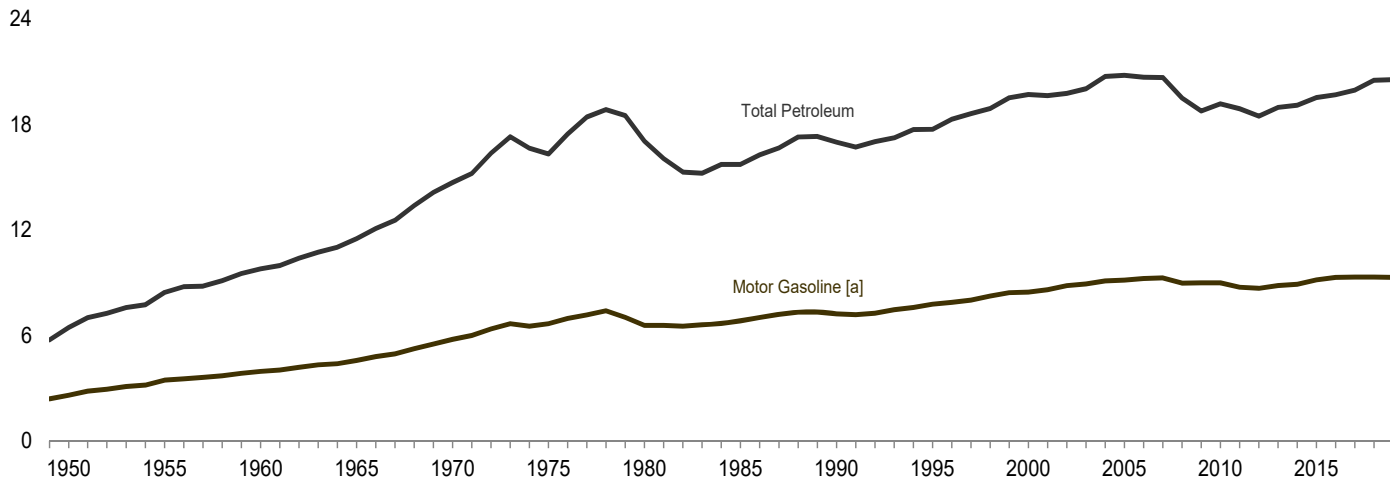
<sup>a</sup> Includes lease condensate.  
<sup>b</sup> "SPR" is the Strategic Petroleum Reserve, which began in October 1977. Crude oil stocks in the SPR include non-U.S. stocks held under foreign or commercial storage agreements.  
<sup>c</sup> All crude oil stocks other than those in "SPR."  
<sup>d</sup> Beginning in 1981, includes stocks of Alaskan crude oil in transit.  
<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> Includes propylene stocks at refineries only.  
<sup>g</sup> Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."  
<sup>h</sup> Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.  
<sup>i</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>j</sup> Includes finished motor gasoline and motor gasoline blending components; excludes oxygenates. Through 1963, also includes aviation gasoline and special naphthas.  
<sup>k</sup> Through 2019, includes residual fuel oil stocks at (or in) refineries, bulk terminals, and pipelines. Beginning in 2020, includes residual fuel oil stocks at

refineries and bulk terminals only.  
<sup>l</sup> Asphalt and road oil, aviation gasoline blending components, kerosene, lubricants, petrochemical feedstocks, petroleum coke, unfinished oils, 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 1993, also includes fuel ethanol. Beginning in 2005, also includes naphtha-type jet fuel. For 2005–2018, also includes oxygenates (excluding fuel ethanol). Beginning in 2009, also includes renewable fuels (excluding fuel ethanol) and other hydrocarbons.  
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. • **1981–2019:** EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions. • **2020:** 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.

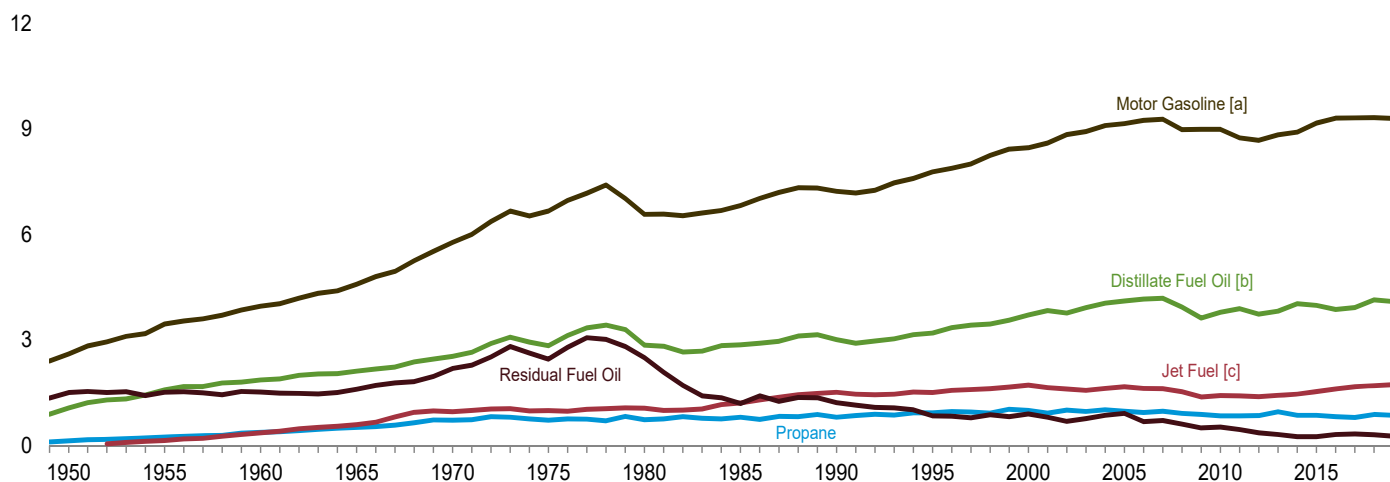
**Figure 3.5 Petroleum Products Supplied by Type**

(Million Barrels per Day)

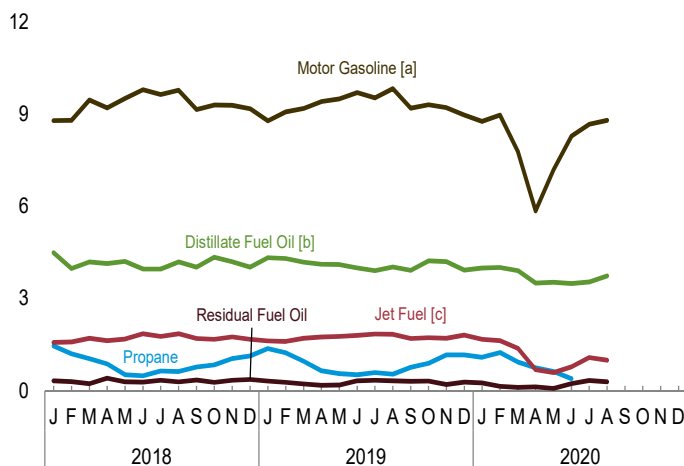
Total Petroleum and Motor Gasoline, 1949–2019



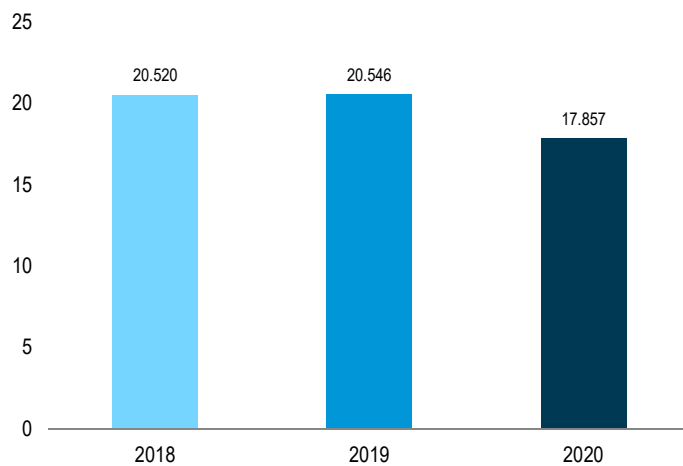
Selected Products, 1949–2019



Selected Products, Monthly



Total, January–August



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

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

[c] Beginning in 2005, includes kerosene-type jet fuel only.

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	Avia- tion Gasoline	Distil- late Fuel Oil <sup>a</sup>	Hydrocarbon Gas Liquids				Jet Fuel <sup>d</sup>	Kero- sene	Lubri- cants	Motor Gasoline <sup>e</sup>	Petro- lum Coke	Resid- ual Fuel Oil	Other <sup>f</sup>	Total
				Propane/Propylene			Total <sup>c</sup>								
				Pro- pane	Propy- lene	Total <sup>b</sup>									
1950 Average .....	180	108	1,082	E 146	E 13	E 158	234	( <sup>d</sup> )	323	106	2,616	41	1,517	250	6,458
1955 Average .....	254	192	1,592	E 251	E 22	E 273	404	154	320	116	3,463	67	1,526	366	8,455
1960 Average .....	302	161	1,872	E 386	E 33	E 419	621	371	271	117	3,969	149	1,529	435	9,797
1965 Average .....	368	120	2,126	E 523	E 45	E 568	841	602	267	129	4,593	202	1,608	657	11,512
1970 Average .....	447	55	2,540	E 727	E 55	E 782	1,224	967	263	136	5,785	212	2,204	866	14,697
1975 Average .....	419	39	2,851	E 730	E 60	E 790	1,352	1,001	159	137	6,675	247	2,462	982	16,322
1980 Average .....	396	35	2,866	E 742	E 72	E 813	1,590	1,068	158	159	6,579	237	2,508	1,460	17,056
1985 Average .....	425	27	2,868	E 810	E 72	E 883	1,721	1,218	114	145	6,831	264	1,202	909	15,726
1990 Average .....	483	24	3,021	E 812	E 105	E 917	1,705	1,522	43	164	7,235	339	1,229	1,225	16,988
1995 Average .....	486	21	3,207	E 938	E 157	E 1,096	2,100	1,514	54	156	7,789	365	852	1,180	17,725
2000 Average .....	525	20	3,722	E 1,011	E 224	E 1,235	2,434	1,725	67	166	8,472	406	909	1,255	19,701
2001 Average .....	519	19	3,847	E 932	E 210	E 1,142	2,200	1,655	72	153	8,610	437	811	1,325	19,649
2002 Average .....	512	18	3,776	E 1,015	E 233	E 1,248	2,295	1,614	43	151	8,848	463	700	1,342	19,761
2003 Average .....	503	16	3,927	E 977	E 238	E 1,215	2,205	1,578	55	140	8,935	455	772	1,448	20,034
2004 Average .....	537	17	4,058	E 1,021	E 255	E 1,276	2,264	1,630	64	141	9,105	524	865	1,525	20,731
2005 Average .....	546	19	4,118	E 986	E 243	E 1,229	2,146	1,679	70	141	9,159	515	920	1,489	20,802
2006 Average .....	521	18	4,169	E 947	E 268	E 1,215	2,135	1,633	54	137	9,253	522	689	1,557	20,687
2007 Average .....	494	17	4,196	E 983	E 252	E 1,235	2,191	1,622	32	142	9,286	490	723	1,487	20,680
2008 Average .....	417	15	3,945	E 924	E 230	E 1,154	2,044	1,539	14	131	8,989	464	622	1,317	19,498
2009 Average .....	360	14	3,631	E 893	E 267	E 1,160	2,127	1,393	18	118	8,997	427	511	1,175	18,771
2010 Average .....	362	15	3,800	E 852	R 305	R 1,157	R 2,263	1,432	20	131	8,993	376	535	1,251	R 19,178
2011 Average .....	355	15	3,899	E 851	R 310	R 1,161	R 2,250	1,425	12	125	8,753	361	461	1,240	R 18,896
2012 Average .....	340	14	3,741	E 862	R 308	R 1,170	R 2,293	1,398	5	114	8,682	360	369	1,165	R 18,482
2013 Average .....	323	12	3,827	E 969	R 306	R 1,275	2,501	1,434	5	121	8,843	354	319	1,227	18,967
2014 Average .....	327	12	4,037	E 870	R 298	R 1,167	R 2,443	1,470	9	126	8,921	347	257	1,151	19,100
2015 Average .....	343	11	3,995	E 865	R 295	R 1,160	R 2,550	1,548	6	138	9,178	349	259	1,153	R 19,532
2016 Average .....	351	11	3,877	E 833	R 301	R 1,134	R 2,541	1,614	9	130	9,317	345	326	1,170	R 19,692
2017 Average .....	351	11	3,932	E 803	R 309	R 1,111	R 2,637	1,682	5	121	9,327	316	342	1,228	R 19,952
2018 January .....	158	10	4,491	1,461	R 331	R 1,792	R 3,537	1,568	35	105	8,788	339	323	1,211	R 20,564
February .....	203	7	3,979	1,207	R 312	R 1,520	R 3,157	1,590	3	135	8,796	198	299	1,326	R 19,693
March .....	278	13	4,196	1,049	R 306	R 1,355	R 3,094	1,706	6	132	9,465	292	236	1,313	R 20,731
April .....	225	12	4,139	879	R 288	R 1,167	R 2,863	1,630	3	122	9,206	304	408	1,126	R 20,038
May .....	385	12	4,209	524	R 311	R 835	R 2,582	1,685	8	103	9,515	305	296	1,153	R 20,251
June .....	476	14	3,959	488	R 308	R 796	R 2,604	1,857	2	131	9,797	353	280	1,295	R 20,770
July .....	460	16	3,963	648	R 294	R 942	R 2,843	1,773	2	128	9,640	323	346	1,177	R 20,671
August .....	507	15	4,196	625	R 314	R 938	R 2,903	1,858	2	134	9,778	440	292	1,232	R 21,356
September .....	385	9	4,022	771	R 302	R 1,073	R 2,902	1,704	(s)	99	9,153	402	349	1,060	R 20,084
October .....	410	16	4,348	838	R 315	R 1,152	R 2,976	1,675	1	107	9,294	414	273	1,271	R 20,786
November .....	247	7	4,204	1,047	R 328	R 1,375	R 3,325	1,756	1	118	9,290	270	342	1,213	R 20,774
December .....	182	12	4,019	1,137	R 325	R 1,462	R 3,381	1,676	1	91	9,179	269	367	1,150	R 20,327
Average .....	327	12	4,146	888	R 311	R 1,199	R 3,014	1,707	5	117	9,329	327	318	1,210	R 20,512
2019 January .....	R 195	R 9	R 4,327	R 1,372	320	R 1,692	R 3,715	R 1,621	26	R 114	R 8,778	R 294	R 319	R 1,217	R 20,615
February .....	R 201	9	R 4,307	R 1,237	299	R 1,536	R 3,590	R 1,607	R 17	R 105	R 9,072	R 128	R 279	R 969	R 20,284
March .....	R 232	R 13	R 4,184	R 963	265	R 1,228	R 3,136	R 1,711	(s)	R 97	R 9,184	R 295	R 221	R 1,102	R 20,176
April .....	R 318	R 12	R 4,120	R 657	289	R 945	R 2,886	R 1,756	2	R 156	R 9,411	R 235	R 177	R 1,261	R 20,333
May .....	369	R 15	R 4,110	R 558	302	R 860	R 2,745	R 1,773	1	R 107	R 9,497	R 320	R 192	R 1,257	R 20,387
June .....	R 413	R 16	R 3,993	R 525	R 311	R 836	R 2,753	R 1,802	R 1	R 104	R 9,703	R 403	R 322	R 1,144	R 20,654
July .....	R 510	R 17	R 3,911	R 591	297	R 888	R 2,930	R 1,847	1	R 129	R 9,533	R 405	R 342	R 1,110	R 20,735
August .....	R 507	R 13	R 4,029	R 541	294	R 834	R 2,854	R 1,841	(s)	R 115	R 9,834	R 337	R 329	R 1,299	R 21,158
September .....	R 480	R 15	R 3,921	R 761	R 283	R 1,044	R 3,041	R 1,702	R 6	R 96	R 9,198	R 263	R 305	R 1,222	R 20,248
October .....	R 438	14	R 4,224	R 895	316	R 1,211	R 3,148	R 1,727	2	130	R 9,308	R 232	R 319	R 1,172	R 20,714
November .....	R 310	12	R 4,201	R 1,169	301	R 1,470	R 3,398	R 1,711	12	R 105	R 9,209	R 347	R 208	R 1,222	R 20,736
December .....	R 198	9	R 3,927	R 1,172	306	R 1,478	R 3,499	R 1,809	R 14	94	R 8,971	R 363	R 284	R 1,275	R 20,443
Average .....	R 348	13	R 4,103	R 868	R 298	R 1,166	R 3,139	R 1,743	7	R 113	R 9,309	R 303	R 275	R 1,189	R 20,543
2020 January .....	191	14	3,998	1,087	282	1,369	3,396	1,673	24	123	8,761	251	258	1,217	19,905
February .....	191	8	4,011	1,243	254	1,497	3,208	1,629	30	108	8,967	261	150	1,276	19,839
March .....	204	8	3,913	936	257	1,193	3,311	1,387	7	62	7,781	255	109	1,247	18,284
April .....	292	6	3,505	746	278	1,024	2,857	691	2	82	5,853	189	125	1,088	14,691
May .....	365	14	3,533	626	274	900	2,881	596	(s)	83	7,188	219	81	1,143	16,103
June .....	R 511	R 11	R 3,492	R 394	R 263	R 657	R 2,760	R 786	R 1	R 104	R 8,286	R 227	R 232	R 1,026	R 17,435
July .....	RF 471	RF 14	E 3,537	NA	NA	E 1,010	RF 2,856	E 1,081	RF 5	RF 68	E 8,670	RF 289	E 336	RE 982	E 18,309
August .....	F 496	F 10	E 3,740	NA	NA	E 1,023	F 2,798	E 994	F 2	F 82	E 8,803	F 309	E 290	E 774	E 18,298
8-Month Average .....	E 341	E 11	E 3,715	NA	NA	E 1,083	E 3,008	E 1,103	E 9	E 89	E 8,039	E 250	E 198	E 1,093	E 17,857
2019 8-Month Average .....	345	13	4,121	802	297	1,099	3,072	1,746	6	116	9,379	304	273	1,172	20,546
2018 8-Month Average .....	338	13	4,144	857	308	1,165	2,947	1,709	8	124	9,379	321	310	1,228	20,520

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

<sup>b</sup> Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

<sup>c</sup> Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

<sup>d</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>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> 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.

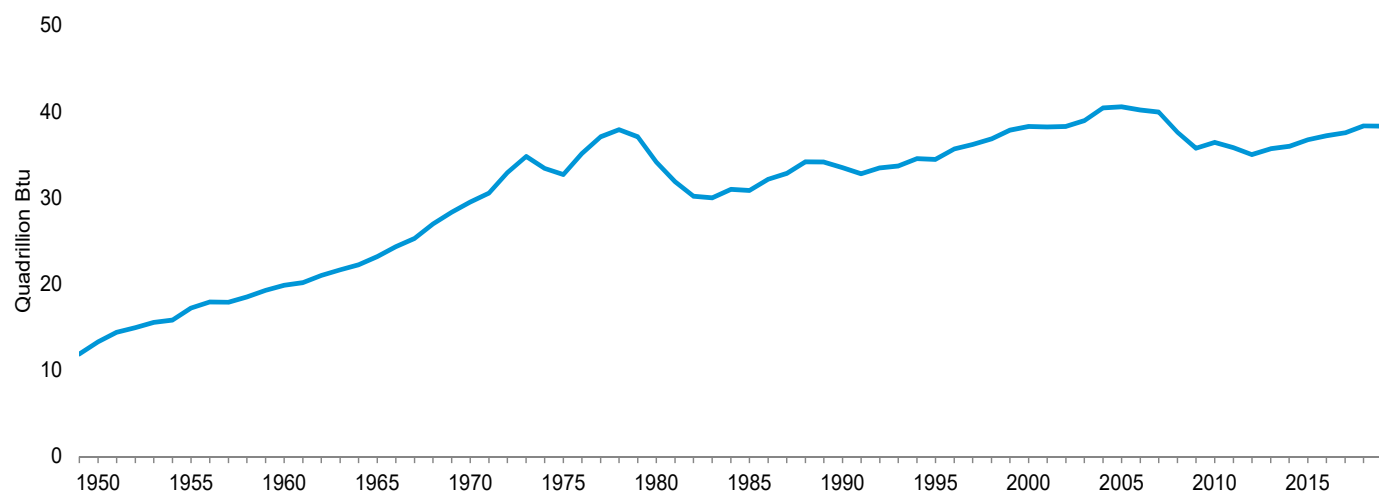
Notes: • Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent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

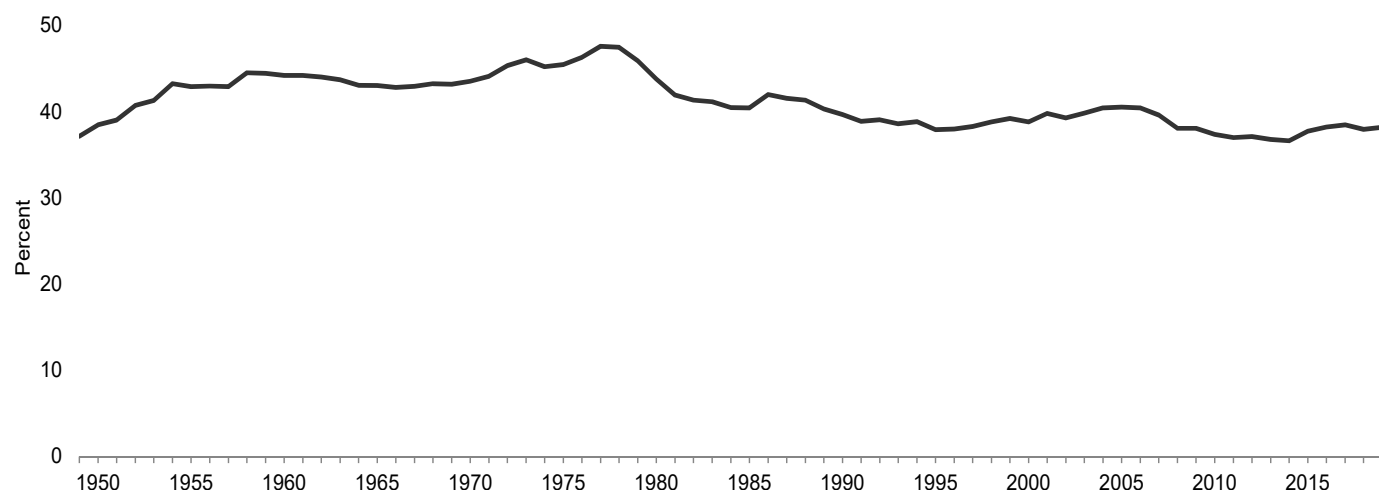
Sources: See end of section.

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

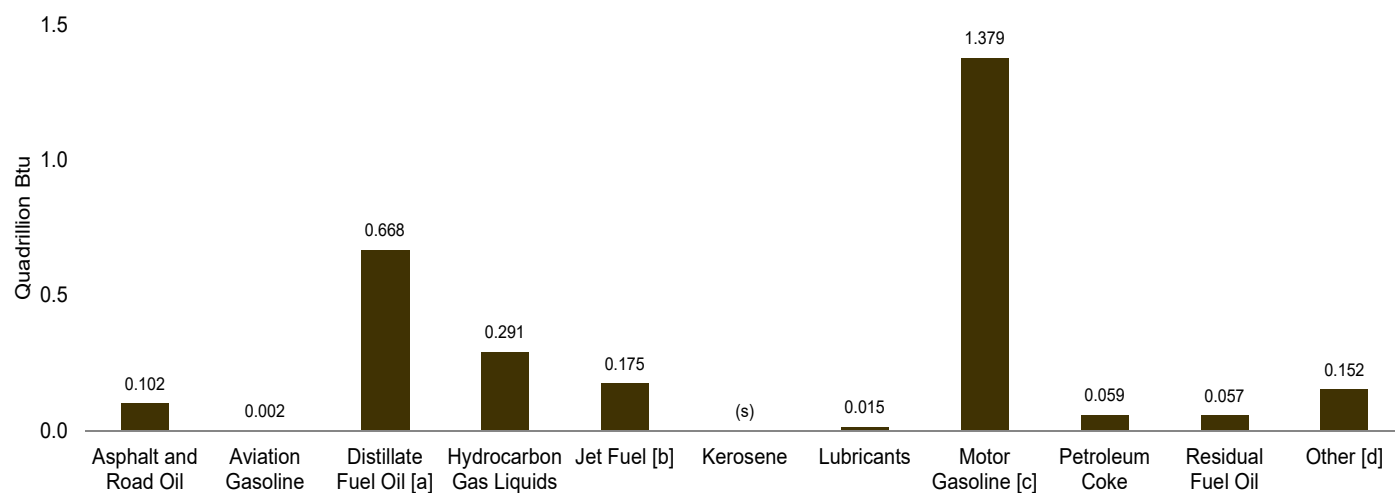
Total, 1949–2019



Petroleum Products Supplied as Share of Total Energy Consumption, 1949–2019



By Product, August 2020



[a] Includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

[b] Includes kerosene-type jet fuel only.

[c] Includes fuel ethanol blended into motor gasoline.

[d] All petroleum products not separately displayed.

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

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

Sources: Tables 1.1 and 3.6.

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

	Asphalt and Road Oil	Avia- tion Gasoline	Distil- late Fuel Oil <sup>a</sup>	Hydrocarbon Gas Liquids				Jet Fuel <sup>d</sup>	Kero- sene	Lubri- cants	Motor Gasoline <sup>e</sup>	Petro- leum Coke	Residual Fuel Oil	Other <sup>f</sup>	Total
				Propane/Propylene			Total <sup>c</sup>								
				Pro- pane	Propy- lene	Total <sup>b</sup>									
1950 Total .....	435	199	2,300	E 204	E 18	E 222	326	( <sup>d</sup> )	668	236	5,015	90	3,482	546	13,298
1955 Total .....	615	354	3,385	E 352	E 30	E 383	562	301	662	258	6,640	147	3,502	798	17,225
1960 Total .....	734	298	3,992	E 543	E 47	E 589	866	739	563	259	7,631	328	3,517	947	19,874
1965 Total .....	890	222	4,519	E 733	E 63	E 796	1,170	1,215	553	286	8,806	444	3,691	1,390	23,184
1970 Total .....	1,082	100	5,401	E 1,019	E 77	E 1,096	1,667	1,973	544	301	11,091	465	5,057	1,817	29,499
1975 Total .....	1,014	71	6,061	E 1,024	E 84	E 1,108	1,811	2,047	329	304	12,798	542	5,649	2,071	32,699
1980 Total .....	962	64	6,110	E 1,043	E 100	E 1,143	2,135	2,190	329	354	12,648	522	5,772	3,073	34,159
1985 Total .....	1,029	50	6,098	E 1,136	E 101	E 1,237	2,252	2,497	236	322	13,098	582	2,759	1,945	30,866
1990 Total .....	1,170	45	6,422	E 1,138	E 147	E 1,285	2,259	3,129	88	362	13,872	745	2,820	2,589	33,500
1995 Total .....	1,178	40	6,812	E 1,316	E 220	E 1,536	2,791	3,132	112	346	14,794	802	1,955	2,499	34,458
2000 Total .....	1,276	36	7,927	E 1,421	E 315	E 1,735	3,216	3,580	140	369	16,127	895	2,091	2,636	38,292
2001 Total .....	1,257	35	8,170	E 1,306	E 294	E 1,600	2,895	3,426	150	338	16,345	961	1,861	2,793	38,231
2002 Total .....	1,240	34	8,020	E 1,423	E 326	E 1,749	3,006	3,340	90	334	16,790	1,018	1,605	2,816	38,293
2003 Total .....	1,220	30	8,341	E 1,370	E 333	E 1,702	2,905	3,265	113	309	16,949	1,000	1,772	3,043	38,947
2004 Total .....	1,304	31	8,642	E 1,435	E 358	E 1,793	2,976	3,383	133	313	17,316	1,148	1,990	3,205	40,441
2005 Total .....	1,323	35	8,745	E 1,382	E 341	E 1,723	2,812	3,475	144	312	17,358	1,125	2,111	3,122	40,561
2006 Total .....	1,261	33	8,831	E 1,328	E 375	E 1,703	2,768	3,379	111	303	17,511	1,141	1,581	3,276	40,196
2007 Total .....	1,197	32	8,858	E 1,379	E 352	E 1,731	2,835	3,358	67	313	17,428	1,072	1,659	3,134	39,952
2008 Total .....	1,012	28	8,346	E 1,299	E 323	E 1,622	2,656	3,193	30	291	16,799	1,017	1,432	2,788	37,591
2009 Total .....	873	27	7,657	E 1,252	E 374	E 1,626	2,707	2,883	36	262	16,714	937	1,173	2,483	35,752
2010 Total .....	878	27	8,011	R 428	R 1,621	R 2,881	2,963	41	291	16,632	831	1,228	2,645	R 36,427	
2011 Total .....	859	27	8,211	R 434	R 1,628	R 2,811	2,950	25	276	16,175	801	1,058	2,621	R 35,815	
2012 Total .....	827	25	7,898	R 432	R 1,645	R 2,887	2,901	11	254	16,085	802	849	2,474	R 35,012	
2013 Total .....	783	22	8,051	R 429	R 1,787	R 3,166	2,969	11	268	16,332	786	731	2,583	R 35,702	
2014 Total .....	793	22	8,492	R 417	R 1,636	R 3,067	3,042	19	280	16,473	772	590	2,430	R 35,978	
2015 Total .....	832	21	8,402	R 413	R 1,626	R 3,221	3,204	13	305	16,941	776	595	2,435	R 36,745	
2016 Total .....	853	20	8,170	R 423	R 1,594	R 3,184	3,350	18	289	17,238	771	751	2,553	R 37,198	
2017 Total .....	849	21	8,263	R 432	R 1,557	R 3,272	3,481	11	267	17,201	708	784	2,667	R 37,525	
2018 January .....	32	1	802	R 39	R 213	R 377	276	6	20	1,377	64	63	223	R 3,242	
February .....	38	1	642	R 34	R 163	R 305	252	(s)	23	1,245	34	53	220	R 2,813	
March .....	57	2	749	R 36	R 161	R 321	300	1	25	1,483	55	46	242	R 3,281	
April .....	45	2	715	33	134	285	277	1	22	1,396	56	77	201	3,077	
May .....	79	2	751	R 37	99	266	296	1	19	1,491	58	58	213	3,235	
June .....	95	2	684	R 35	R 92	R 259	316	(s)	24	1,485	65	53	232	R 3,214	
July .....	95	3	707	R 35	R 112	R 295	312	(s)	24	1,510	61	67	218	R 3,292	
August .....	104	2	749	R 37	112	R 302	327	(s)	25	1,532	84	57	228	3,410	
September .....	77	1	695	35	R 124	293	290	(s)	18	1,388	74	66	190	3,091	
October .....	84	3	776	R 37	R 137	R 314	294	(s)	20	1,456	79	53	233	R 3,313	
November .....	49	1	726	R 38	R 158	R 342	299	(s)	21	1,409	50	65	217	R 3,178	
December .....	37	2	718	R 39	R 174	R 360	295	(s)	17	1,438	51	72	213	R 3,203	
Total .....	793	22	8,715	R 436	R 1,680	R 3,720	3,533	11	259	17,209	730	729	2,630	R 38,351	
2019 January .....	R 40	R 1	R 773	R 163	38	R 201	R 397	R 285	5	21	R 1,375	R 56	R 62	R 225	R 3,240
February .....	R 37	1	R 695	R 133	32	R 165	R 343	255	3	R 18	R 1,283	22	R 49	R 162	R 2,869
March .....	R 48	2	R 747	R 115	31	R 146	R 328	R 301	(s)	R 18	R 1,438	R 56	R 43	204	3,185
April .....	63	2	R 712	R 76	33	R 109	288	R 299	(s)	R 28	R 1,426	R 43	R 33	R 225	R 3,120
May .....	76	2	R 733	R 66	36	102	R 285	R 312	(s)	R 20	R 1,487	R 61	R 37	R 232	R 3,246
June .....	R 82	2	R 690	R 61	R 36	R 96	R 281	306	(s)	19	R 1,471	R 74	R 61	R 205	R 3,191
July .....	105	3	R 698	R 70	35	R 106	R 310	R 325	(s)	R 24	R 1,493	77	R 67	R 206	R 3,306
August .....	104	2	R 719	R 64	35	R 99	R 302	R 324	(s)	R 22	R 1,540	R 64	R 64	R 240	R 3,380
September .....	R 96	2	R 677	R 88	R 33	R 120	R 311	R 290	1	18	R 1,394	R 48	R 57	R 218	R 3,112
October .....	R 90	2	754	R 107	38	R 144	R 334	R 304	(s)	R 25	R 1,458	R 44	62	217	R 3,290
November .....	R 62	2	R 726	R 135	35	R 169	R 347	291	2	19	R 1,396	R 64	R 39	219	R 3,166
December .....	41	1	R 701	R 140	36	R 176	R 370	R 318	2	18	R 1,405	R 69	R 55	R 235	R 3,216
Total .....	R 844	R 23	R 8,625	R 1,217	R 418	R 1,635	R 3,897	R 3,608	14	R 250	R 17,166	R 678	R 631	R 2,585	R 38,322
2020 January .....	39	2	714	129	33	163	352	294	4	23	1,372	48	50	225	3,123
February .....	37	1	670	138	28	167	307	268	5	19	1,314	46	27	221	2,914
March .....	42	1	699	112	31	142	345	244	1	12	1,219	48	21	230	2,862
April .....	58	1	605	86	32	118	280	118	(s)	15	887	35	24	194	2,217
May .....	75	2	631	75	33	107	295	105	(s)	16	1,126	R 42	16	211	2,518
June .....	R 102	2	R 603	R 45	R 30	R 76	R 272	R 134	(s)	R 19	R 1,256	R 42	R 44	R 184	R 2,656
July .....	RF 97	RF 2	E 631	NA	NA	E 120	RF 300	E 190	F 1	RF 13	E 1,358	RF 55	E 66	RE 188	E 2,901
August .....	F 102	F 2	E 668	NA	NA	E 122	F 291	E 175	F (s)	F 15	E 1,379	F 59	E 57	E 152	E 2,899
8-Month Total .....	E 552	E 13	E 5,220	NA	NA	E 1,015	E 2,441	E 1,526	E 12	E 132	E 9,910	E 374	E 304	E 1,605	E 22,089
2019 8-Month Total .....	556	16	5,766	749	277	1,025	2,534	2,406	8	171	11,514	453	417	1,697	25,537
2018 8-Month Total .....	545	15	5,800	800	287	1,087	2,410	2,355	11	182	11,519	477	473	1,777	25,565

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

<sup>b</sup> Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

<sup>c</sup> Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

<sup>d</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>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> 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.

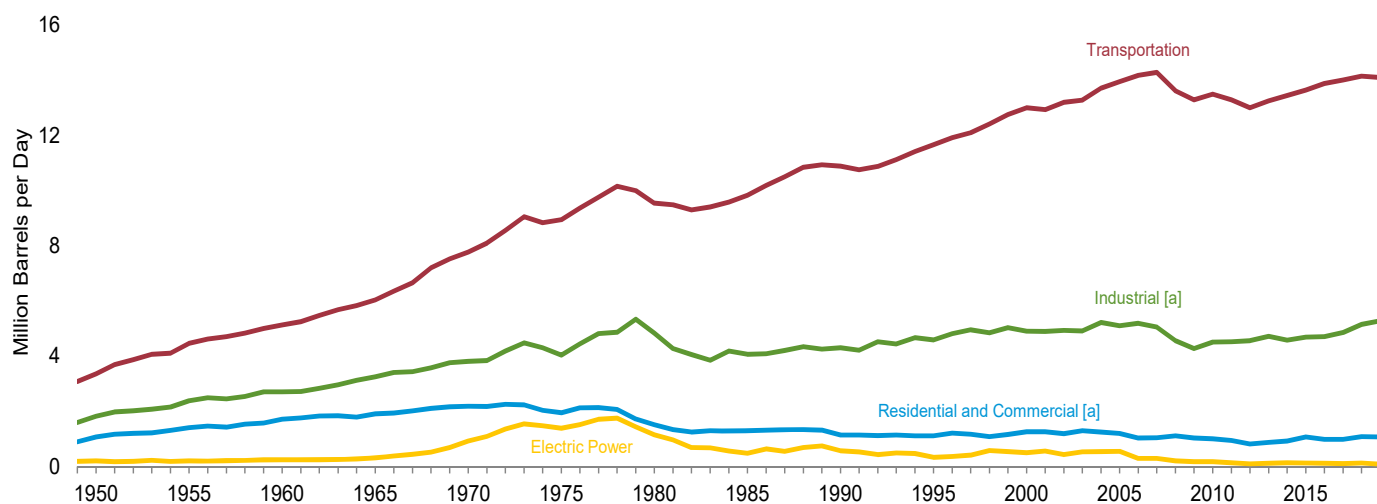
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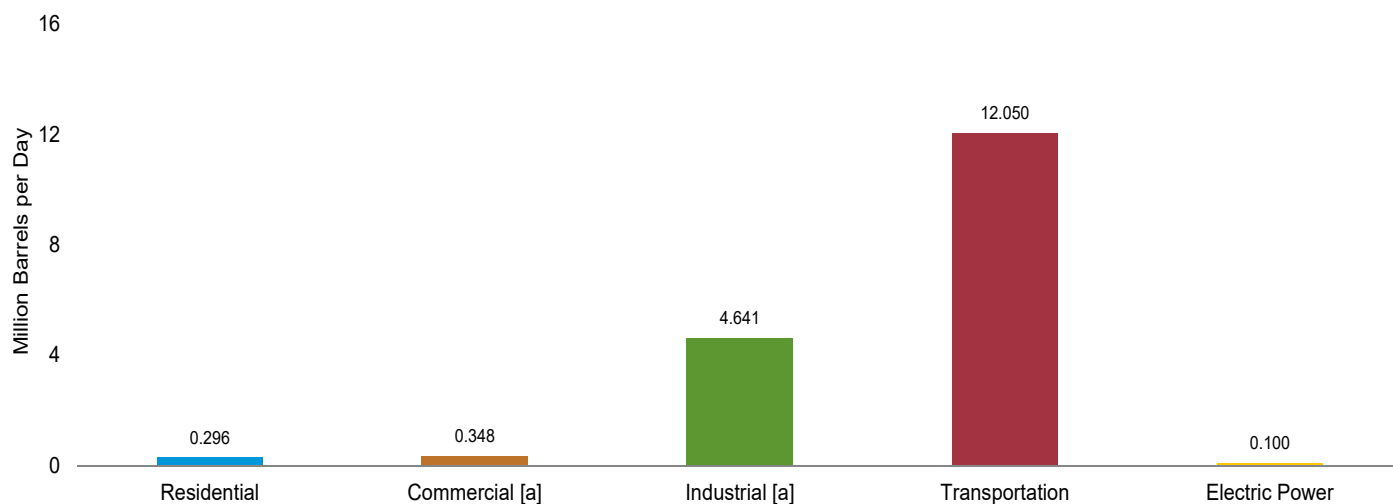
Sources: See end of section.

**Figure 3.7 Petroleum Consumption by Sector**

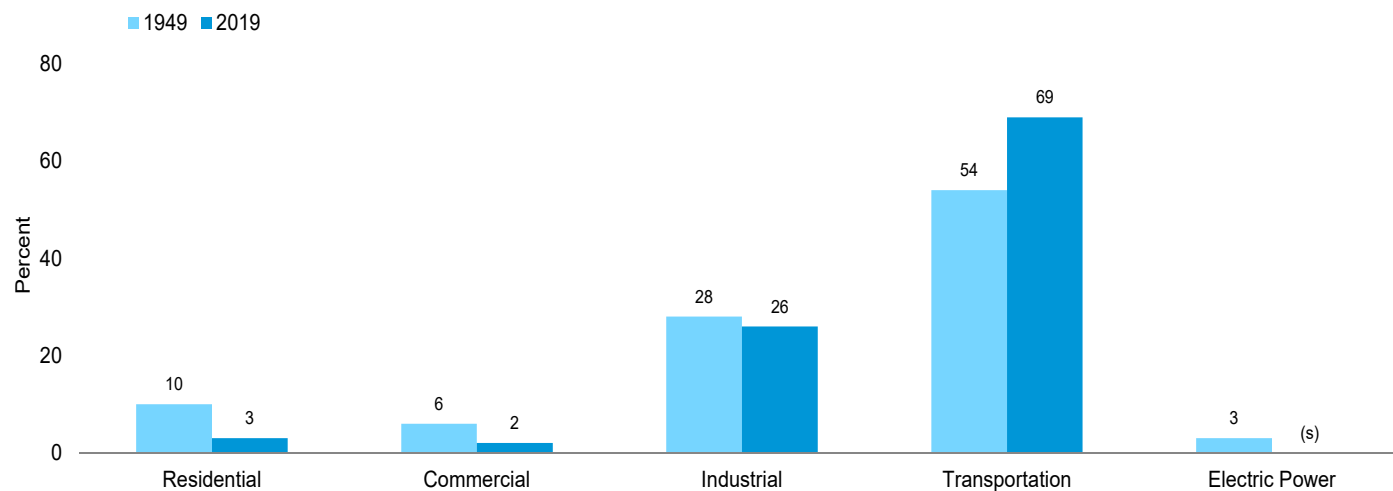
By Sector, 1949–2019



By Sector, June 2020



Sector Shares, 1949 and 2019



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

(s)=Less than 0.5 percent.

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	HGL <sup>b</sup>	Kero-sene	Total	Distillate Fuel Oil	HGL <sup>b</sup>	Kero-sene	Motor Gasoline <sup>c,d</sup>	Petroleum Coke	Residual Fuel Oil	Total
		Propane				Propane					
1950 Average .....	390	104	168	662	123	28	23	52	NA	185	411
1955 Average .....	562	144	179	885	177	38	24	69	NA	209	519
1960 Average .....	736	217	171	1,123	232	58	23	35	NA	243	590
1965 Average .....	805	275	161	1,242	251	74	26	40	NA	281	672
1970 Average .....	883	392	144	1,419	276	102	30	45	NA	311	764
1975 Average .....	850	365	78	1,293	276	92	24	46	NA	214	653
1980 Average .....	617	222	51	890	243	63	20	56	NA	245	626
1985 Average .....	514	224	77	815	297	68	16	50	NA	99	530
1990 Average .....	460	252	31	742	252	73	6	58	0	100	489
1995 Average .....	426	282	36	743	225	78	11	10	(s)	62	385
2000 Average .....	424	395	46	865	230	107	14	23	(s)	40	415
2001 Average .....	427	375	46	849	239	102	15	20	(s)	30	406
2002 Average .....	404	384	29	817	209	101	8	24	(s)	35	376
2003 Average .....	438	389	34	861	233	112	9	32	(s)	48	434
2004 Average .....	433	364	41	839	221	108	10	23	(s)	53	416
2005 Average .....	402	366	40	809	210	94	10	24	(s)	50	389
2006 Average .....	335	318	32	685	189	88	7	26	(s)	33	343
2007 Average .....	342	345	21	708	181	87	4	32	(s)	33	337
2008 Average .....	354	394	10	758	181	113	2	24	(s)	31	351
2009 Average .....	276	391	13	680	187	99	2	28	(s)	31	348
2010 Average .....	266	378	14	658	185	100	2	28	(s)	27	343
2011 Average .....	248	351	9	608	186	102	2	24	(s)	23	336
2012 Average .....	228	281	4	513	168	96	1	21	(s)	14	300
2013 Average .....	233	331	4	568	163	108	(s)	22	(s)	11	304
2014 Average .....	253	349	7	609	169	114	1	29	(s)	3	318
2015 Average .....	262	318	5	584	171	106	1	<sup>d</sup> 204	(s)	2	483
2016 Average .....	206	306	7	518	154	107	1	203	(s)	2	467
2017 Average .....	205	307	4	517	153	111	1	196	(s)	2	462
2018 January .....	465	706	26	1,197	296	208	4	187	(s)	3	699
February .....	332	574	2	907	211	177	(s)	187	(s)	2	577
March .....	249	520	4	773	158	164	1	202	(s)	1	526
April .....	237	400	2	640	151	135	(s)	196	(s)	1	484
May .....	141	182	6	328	90	82	1	203	0	1	376
June .....	113	144	1	258	72	73	(s)	209	0	1	354
July .....	102	129	2	233	65	70	(s)	205	0	1	341
August .....	86	131	2	219	55	70	(s)	208	0	(s)	334
September .....	123	152	(s)	275	79	75	(s)	195	(s)	1	349
October .....	255	290	1	546	162	108	(s)	198	(s)	1	471
November .....	340	523	1	864	217	164	(s)	198	(s)	2	581
December .....	451	599	1	1,051	287	183	(s)	195	(s)	3	668
Average .....	241	361	4	606	153	126	1	199	(s)	1	480
2019 January .....	408	<sup>R</sup> 663	19	<sup>R</sup> 1,090	259	<sup>R</sup> 197	3	<sup>R</sup> 187	(s)	2	649
February .....	376	<sup>R</sup> 624	<sup>R</sup> 13	<sup>R</sup> 1,013	239	188	2	<sup>R</sup> 193	(s)	2	<sup>R</sup> 624
March .....	300	<sup>R</sup> 520	<sup>R</sup> (s)	<sup>R</sup> 821	191	163	(s)	<sup>R</sup> 196	(s)	1	<sup>R</sup> 551
April .....	200	<sup>R</sup> 310	1	<sup>R</sup> 511	127	<sup>R</sup> 112	(s)	<sup>R</sup> 200	(s)	1	<sup>R</sup> 441
May .....	151	<sup>R</sup> 223	1	<sup>R</sup> 375	96	<sup>R</sup> 91	(s)	<sup>R</sup> 202	0	1	<sup>R</sup> 391
June .....	132	146	<sup>R</sup> 1	278	84	73	(s)	<sup>R</sup> 207	0	1	<sup>R</sup> 364
July .....	123	127	1	251	78	68	(s)	<sup>R</sup> 203	0	1	<sup>R</sup> 350
August .....	188	130	(s)	<sup>R</sup> 318	120	69	(s)	209	0	1	399
September .....	109	<sup>R</sup> 150	<sup>R</sup> 4	263	69	74	1	<sup>R</sup> 196	0	1	340
October .....	164	<sup>R</sup> 283	2	<sup>R</sup> 448	104	106	(s)	<sup>R</sup> 198	0	1	<sup>R</sup> 409
November .....	332	<sup>R</sup> 506	9	<sup>R</sup> 847	212	<sup>R</sup> 159	1	196	0	2	570
December .....	381	<sup>R</sup> 573	10	<sup>R</sup> 964	242	176	2	<sup>R</sup> 191	(s)	2	613
Average .....	238	<sup>R</sup> 353	5	<sup>R</sup> 596	151	123	1	<sup>R</sup> 198	(s)	1	474
2020 January .....	311	<sup>R</sup> 588	18	<sup>R</sup> 916	198	179	3	187	(s)	2	<sup>R</sup> 568
February .....	273	<sup>R</sup> 561	22	<sup>R</sup> 856	174	173	4	191	(s)	1	543
March .....	239	<sup>R</sup> 427	5	<sup>R</sup> 671	152	<sup>R</sup> 140	1	166	0	1	460
April .....	222	356	2	<sup>R</sup> 579	141	123	(s)	125	0	1	<sup>R</sup> 390
May .....	<sup>R</sup> 242	<sup>R</sup> 221	(s)	<sup>R</sup> 464	<sup>R</sup> 154	91	(s)	153	0	1	<sup>R</sup> 399
June .....	156	140	1	296	99	71	(s)	176	0	1	348
6-Month Average .....	241	382	8	630	153	129	1	166	(s)	1	451
2019 6-Month Average .....	260	413	6	679	166	137	1	197	(s)	1	503
2018 6-Month Average .....	256	420	7	683	163	140	1	197	(s)	1	502

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

<sup>b</sup> Hydrocarbon gas liquids.

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

<sup>d</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.

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

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

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

Sources: See end of section.

**Table 3.7b Petroleum Consumption: Industrial Sector**  
(Thousand Barrels per Day)

	Industrial Sector <sup>a</sup>												
	Asphalt and Road Oil	Distil- late Fuel Oil	Hydrocarbon Gas Liquids				Kero- sene	Lubri- cants	Motor Gas- line <sup>d,e</sup>	Petro- leum Coke	Resid- ual Fuel Oil	Other <sup>f</sup>	Total
			Propane/Propylene										
			Pro- pane	Propy- lene	Total <sup>b</sup>	Total <sup>c</sup>							
1950 Average .....	180	328	12	13	24	100	132	43	131	41	617	250	1,822
1955 Average .....	254	466	59	22	81	212	116	47	173	67	686	366	2,387
1960 Average .....	302	476	98	33	131	333	78	48	198	149	689	435	2,708
1965 Average .....	368	541	152	45	197	470	80	62	179	202	689	657	3,247
1970 Average .....	447	577	201	55	256	699	89	70	150	203	708	866	3,808
1975 Average .....	419	630	242	60	302	863	58	68	116	246	658	982	4,038
1980 Average .....	396	621	445	72	516	1,293	87	82	82	234	586	1,460	4,842
1985 Average .....	425	526	497	72	569	1,408	21	75	114	261	326	909	4,065
1990 Average .....	483	541	471	105	576	1,364	6	84	97	325	179	1,225	4,304
1995 Average .....	486	532	566	157	723	1,727	7	80	105	328	147	1,180	4,594
2000 Average .....	525	563	500	224	724	1,923	8	86	79	361	105	1,255	4,903
2001 Average .....	519	611	444	210	654	1,713	11	79	155	390	89	1,325	4,892
2002 Average .....	512	566	521	233	754	1,801	7	78	163	383	83	1,342	4,934
2003 Average .....	503	551	463	238	701	1,691	12	72	171	375	96	1,448	4,918
2004 Average .....	537	570	535	255	790	1,778	14	73	195	423	108	1,525	5,222
2005 Average .....	546	594	506	243	749	1,666	19	72	187	404	123	1,489	5,100
2006 Average .....	521	594	521	268	789	1,710	14	71	198	425	104	1,557	5,193
2007 Average .....	494	595	536	252	787	1,744	6	73	161	412	84	1,487	5,056
2008 Average .....	417	637	389	230	619	1,510	2	67	131	394	84	1,317	4,559
2009 Average .....	360	509	383	267	650	1,617	2	61	128	363	57	1,175	4,272
2010 Average .....	362	547	369	<sup>R</sup> 305	<sup>R</sup> 674	<sup>R</sup> 1,780	4	61	140	310	52	1,251	<sup>R</sup> 4,508
2011 Average .....	355	586	393	<sup>R</sup> 310	<sup>R</sup> 703	<sup>R</sup> 1,792	2	58	138	295	59	1,240	<sup>R</sup> 4,523
2012 Average .....	340	602	480	<sup>R</sup> 308	<sup>R</sup> 788	<sup>R</sup> 1,910	1	53	136	319	30	1,165	<sup>R</sup> 4,558
2013 Average .....	323	601	525	<sup>R</sup> 306	<sup>R</sup> 831	<sup>R</sup> 2,057	1	57	142	295	21	1,227	<sup>R</sup> 4,723
2014 Average .....	327	648	401	<sup>R</sup> 298	<sup>R</sup> 698	<sup>R</sup> 1,974	1	59	114	290	18	1,151	<sup>R</sup> 4,582
2015 Average .....	343	555	437	<sup>R</sup> 295	<sup>R</sup> 732	<sup>R</sup> 2,122	1	64	<sup>e</sup> 140	295	15	1,153	<sup>R</sup> 4,688
2016 Average .....	351	548	415	<sup>R</sup> 301	<sup>R</sup> 717	<sup>R</sup> 2,123	1	61	142	289	23	1,170	<sup>R</sup> 4,707
2017 Average .....	351	572	379	<sup>R</sup> 309	<sup>R</sup> 688	<sup>R</sup> 2,214	1	56	143	269	22	1,228	<sup>R</sup> 4,856
2018 January .....	158	734	541	<sup>R</sup> 331	<sup>R</sup> 873	<sup>R</sup> 2,617	5	50	138	279	18	1,211	<sup>R</sup> 5,209
February .....	203	569	451	<sup>R</sup> 312	<sup>R</sup> 764	<sup>R</sup> 2,402	(s)	63	138	144	19	1,326	<sup>R</sup> 4,864
March .....	278	715	360	<sup>R</sup> 306	<sup>R</sup> 666	<sup>R</sup> 2,405	1	62	148	252	14	1,313	<sup>R</sup> 5,188
April .....	225	593	338	<sup>R</sup> 288	<sup>R</sup> 626	<sup>R</sup> 2,322	(s)	57	144	259	24	1,126	<sup>R</sup> 4,751
May .....	385	681	254	<sup>R</sup> 311	<sup>R</sup> 565	<sup>R</sup> 2,312	1	48	149	272	17	1,153	<sup>R</sup> 5,019
June .....	476	493	265	<sup>R</sup> 308	<sup>R</sup> 573	<sup>R</sup> 2,382	(s)	62	153	300	17	1,295	<sup>R</sup> 5,179
July .....	460	487	444	<sup>R</sup> 294	<sup>R</sup> 738	<sup>R</sup> 2,639	(s)	60	151	265	20	1,177	<sup>R</sup> 5,259
August .....	507	631	418	<sup>R</sup> 314	<sup>R</sup> 732	<sup>R</sup> 2,696	(s)	63	153	384	17	1,232	<sup>R</sup> 5,683
September .....	385	588	539	<sup>R</sup> 302	<sup>R</sup> 841	<sup>R</sup> 2,670	(s)	47	143	349	20	1,060	<sup>R</sup> 5,260
October .....	410	663	433	<sup>R</sup> 315	<sup>R</sup> 748	<sup>R</sup> 2,572	(s)	51	146	378	17	1,271	<sup>R</sup> 5,508
November .....	247	580	355	<sup>R</sup> 328	<sup>R</sup> 683	<sup>R</sup> 2,632	(s)	55	145	226	22	1,213	<sup>R</sup> 5,121
December .....	182	399	349	<sup>R</sup> 325	<sup>R</sup> 674	<sup>R</sup> 2,593	(s)	43	144	218	23	1,150	<sup>R</sup> 4,751
Average .....	327	595	396	<sup>R</sup> 311	<sup>R</sup> 707	<sup>R</sup> 2,521	1	55	146	278	19	1,210	<sup>R</sup> 5,152
2019 January .....	<sup>R</sup> 195	<sup>R</sup> 790	<sup>R</sup> 506	320	<sup>R</sup> 826	<sup>R</sup> 2,849	4	<sup>R</sup> 54	<sup>R</sup> 137	<sup>R</sup> 242	<sup>R</sup> 19	<sup>R</sup> 1,217	<sup>R</sup> 5,507
February .....	<sup>R</sup> 201	<sup>R</sup> 741	<sup>R</sup> 420	299	<sup>R</sup> 719	<sup>R</sup> 2,773	2	<sup>R</sup> 49	<sup>R</sup> 142	<sup>R</sup> 77	<sup>R</sup> 17	<sup>R</sup> 969	<sup>R</sup> 4,972
March .....	<sup>R</sup> 232	<sup>R</sup> 676	<sup>R</sup> 275	265	<sup>R</sup> 539	<sup>R</sup> 2,448	<sup>R</sup> (s)	<sup>R</sup> 46	<sup>R</sup> 144	<sup>R</sup> 253	14	<sup>R</sup> 1,102	<sup>R</sup> 4,913
April .....	<sup>R</sup> 318	<sup>R</sup> 642	<sup>R</sup> 229	289	<sup>R</sup> 517	<sup>R</sup> 2,458	(s)	<sup>R</sup> 74	<sup>R</sup> 147	<sup>R</sup> 205	11	<sup>R</sup> 1,261	<sup>R</sup> 5,116
May .....	369	<sup>R</sup> 635	238	302	540	<sup>R</sup> 2,425	(s)	<sup>R</sup> 50	<sup>R</sup> 149	<sup>R</sup> 273	12	<sup>R</sup> 1,257	<sup>R</sup> 5,171
June .....	<sup>R</sup> 413	<sup>R</sup> 519	<sup>R</sup> 302	<sup>R</sup> 311	<sup>R</sup> 613	<sup>R</sup> 2,529	(s)	<sup>R</sup> 49	<sup>R</sup> 152	<sup>R</sup> 367	<sup>R</sup> 19	<sup>R</sup> 1,144	<sup>R</sup> 5,194
July .....	<sup>R</sup> 510	<sup>R</sup> 457	<sup>R</sup> 390	297	<sup>R</sup> 687	<sup>R</sup> 2,729	(s)	<sup>R</sup> 61	<sup>R</sup> 149	<sup>R</sup> 357	20	<sup>R</sup> 1,110	<sup>R</sup> 5,393
August .....	<sup>R</sup> 507	<sup>R</sup> 452	<sup>R</sup> 336	294	<sup>R</sup> 630	<sup>R</sup> 2,650	(s)	<sup>R</sup> 54	<sup>R</sup> 154	<sup>R</sup> 293	20	<sup>R</sup> 1,299	<sup>R</sup> 5,428
September .....	<sup>R</sup> 480	<sup>R</sup> 562	<sup>R</sup> 532	<sup>R</sup> 283	<sup>R</sup> 814	<sup>R</sup> 2,812	1	<sup>R</sup> 45	<sup>R</sup> 144	<sup>R</sup> 221	<sup>R</sup> 18	<sup>R</sup> 1,222	<sup>R</sup> 5,505
October .....	<sup>R</sup> 438	<sup>R</sup> 701	<sup>R</sup> 500	316	<sup>R</sup> 816	<sup>R</sup> 2,754	(s)	61	146	<sup>R</sup> 221	19	1,172	<sup>R</sup> 5,511
November .....	<sup>R</sup> 310	<sup>R</sup> 609	<sup>R</sup> 498	301	<sup>R</sup> 799	<sup>R</sup> 2,728	2	50	144	<sup>R</sup> 326	<sup>R</sup> 13	1,222	<sup>R</sup> 5,402
December .....	<sup>R</sup> 198	<sup>R</sup> 434	<sup>R</sup> 418	306	<sup>R</sup> 724	<sup>R</sup> 2,745	2	44	140	<sup>R</sup> 337	<sup>R</sup> 17	<sup>R</sup> 1,275	<sup>R</sup> 5,192
Average .....	<sup>R</sup> 348	<sup>R</sup> 601	<sup>R</sup> 387	<sup>R</sup> 298	<sup>R</sup> 685	<sup>R</sup> 2,658	1	<sup>R</sup> 53	<sup>R</sup> 146	<sup>R</sup> 266	<sup>R</sup> 17	<sup>R</sup> 1,189	<sup>R</sup> 5,278
2020 January .....	191	693	<sup>R</sup> 315	282	<sup>R</sup> 597	<sup>R</sup> 2,624	3	58	137	205	15	1,217	<sup>R</sup> 5,145
February .....	191	715	<sup>R</sup> 504	254	<sup>R</sup> 758	<sup>R</sup> 2,469	4	51	140	231	9	1,276	<sup>R</sup> 5,088
March .....	204	576	<sup>R</sup> 363	257	<sup>R</sup> 620	<sup>R</sup> 2,738	1	29	122	211	7	1,247	<sup>R</sup> 5,135
April .....	292	252	<sup>R</sup> 262	278	<sup>R</sup> 540	<sup>R</sup> 2,373	(s)	39	92	151	7	1,088	<sup>R</sup> 4,292
May .....	365	<sup>R</sup> 201	<sup>R</sup> 309	274	<sup>R</sup> 583	2,563	(s)	39	113	178	5	1,143	<sup>R</sup> 4,608
June .....	511	194	178	263	440	2,543	(s)	49	130	173	14	1,026	4,641
6-Month Average .....	292	438	321	268	589	2,554	2	44	122	191	10	1,166	4,819
2019 6-Month Average .....	289	667	327	297	625	2,578	1	54	145	238	15	1,161	5,148
2018 6-Month Average .....	288	633	368	309	677	2,407	1	57	145	252	18	1,236	5,038

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

<sup>b</sup> Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

<sup>c</sup> Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

<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> 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. (s)=Less than 500 barrels per day and greater than -500 barrels per day.

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

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

Sources: See end of section.



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

	Transportation Sector								Electric Power Sector <sup>a</sup>			
	Aviation Gasoline	Distillate Fuel Oil <sup>c</sup>	HGL <sup>b</sup>	Jet Fuel <sup>e</sup>	Lubricants	Motor Gasoline <sup>f,g</sup>	Residual Fuel Oil	Total	Distillate Fuel Oil <sup>h</sup>	Petroleum Coke	Residual Fuel Oil <sup>i</sup>	Total
			Propane <sup>d</sup>									
1950 Average .....	108	226	2	( <sup>e</sup> )	64	2,433	524	3,356	15	NA	192	207
1955 Average .....	192	372	9	154	70	3,221	440	4,458	15	NA	191	206
1960 Average .....	161	418	13	371	68	3,736	367	5,135	10	NA	231	241
1965 Average .....	120	514	23	602	67	4,374	336	6,036	14	NA	302	316
1970 Average .....	55	738	32	967	66	5,589	332	7,778	66	9	853	928
1975 Average .....	39	998	31	992	70	6,512	310	8,951	107	1	1,280	1,388
1980 Average .....	35	1,311	13	1,062	77	6,441	608	9,546	79	2	1,069	1,151
1985 Average .....	27	1,491	21	1,218	71	6,667	342	9,838	40	3	435	478
1990 Average .....	24	1,722	16	1,522	80	7,080	443	10,888	45	14	507	566
1995 Average .....	21	1,973	13	1,514	76	7,674	397	11,668	51	37	247	334
2000 Average .....	20	2,422	8	1,725	81	8,370	386	13,012	82	45	378	505
2001 Average .....	19	2,489	10	1,655	74	8,435	255	12,938	80	47	437	564
2002 Average .....	18	2,536	10	1,614	73	8,662	295	13,208	60	80	287	427
2003 Average .....	16	2,629	13	1,578	68	8,733	249	13,286	76	79	379	534
2004 Average .....	17	2,783	14	1,630	69	8,887	321	13,720	52	101	382	535
2005 Average .....	19	2,858	20	1,679	68	8,948	365	13,957	54	111	382	547
2006 Average .....	18	3,017	20	1,633	67	9,029	395	14,178	35	97	157	289
2007 Average .....	17	3,037	16	1,622	69	9,093	433	14,287	42	78	173	293
2008 Average .....	15	2,738	29	1,539	64	8,834	402	13,621	34	70	104	209
2009 Average .....	14	2,626	20	1,393	57	8,841	344	13,297	33	63	79	175
2010 Average .....	15	2,764	<sup>d</sup> 5	1,432	70	8,824	389	13,499	38	65	67	170
2011 Average .....	15	2,849	5	1,425	67	8,591	338	13,291	30	66	41	137
2012 Average .....	14	2,719	5	1,398	61	8,525	291	13,013	25	41	33	99
2013 Average .....	12	2,804	5	1,434	65	8,679	253	13,253	26	59	34	119
2014 Average .....	12	2,928	5	1,470	67	8,778	195	13,455	39	57	41	137
2015 Average .....	11	2,974	5	1,548	74	<sup>g</sup> 8,835	202	13,649	33	54	41	128
2016 Average .....	11	2,944	5	1,614	70	8,973	271	13,887	26	57	31	113
2017 Average .....	11	2,976	5	1,682	64	8,988	290	14,016	26	47	29	101
2018 January .....	10	2,826	5	1,568	56	8,463	185	13,112	169	60	118	348
February .....	7	2,844	5	1,590	71	8,471	255	13,244	24	54	23	101
March .....	13	3,051	5	1,706	70	9,115	199	14,160	23	40	21	84
April .....	12	3,132	5	1,630	64	8,866	359	14,069	26	45	24	94
May .....	12	3,267	5	1,685	54	9,164	252	14,440	30	33	25	89
June .....	14	3,252	5	1,857	69	9,435	233	14,866	30	54	29	113
July .....	16	3,285	5	1,773	68	9,284	298	14,729	23	58	28	110
August .....	15	3,398	5	1,858	71	9,417	245	15,009	25	56	30	111
September .....	9	3,209	5	1,704	52	8,814	296	14,090	24	53	33	110
October .....	16	3,242	5	1,675	57	8,950	227	14,172	25	36	28	89
November .....	7	3,037	5	1,756	62	8,947	294	14,109	30	44	25	99
December .....	12	2,855	5	1,676	48	8,839	320	13,757	27	51	22	100
Average .....	12	3,118	5	1,707	62	8,984	263	14,152	38	49	34	121
2019 January .....	<sup>R</sup> 9	<sup>R</sup> 2,834	5	<sup>R</sup> 1,621	60	<sup>R</sup> 8,454	<sup>R</sup> 264	<sup>R</sup> 13,248	36	52	34	122
February .....	<sup>R</sup> 9	<sup>R</sup> 2,927	5	<sup>R</sup> 1,607	<sup>R</sup> 55	<sup>R</sup> 8,737	<sup>R</sup> 239	<sup>R</sup> 13,579	24	50	21	95
March .....	<sup>R</sup> 13	<sup>R</sup> 2,995	5	<sup>R</sup> 1,711	<sup>R</sup> 51	<sup>R</sup> 8,845	<sup>R</sup> 186	<sup>R</sup> 13,806	22	42	20	84
April .....	<sup>R</sup> 12	<sup>R</sup> 3,131	5	<sup>R</sup> 1,756	<sup>R</sup> 83	<sup>R</sup> 9,063	<sup>R</sup> 144	<sup>R</sup> 14,194	20	30	21	71
May .....	<sup>R</sup> 15	<sup>R</sup> 3,203	5	<sup>R</sup> 1,773	<sup>R</sup> 56	<sup>R</sup> 9,147	<sup>R</sup> 155	<sup>R</sup> 14,355	24	47	24	96
June .....	<sup>R</sup> 16	<sup>R</sup> 3,234	5	<sup>R</sup> 1,802	55	<sup>R</sup> 9,345	<sup>R</sup> 275	<sup>R</sup> 14,731	25	35	27	88
July .....	<sup>R</sup> 17	<sup>R</sup> 3,229	5	<sup>R</sup> 1,847	<sup>R</sup> 68	<sup>R</sup> 9,181	<sup>R</sup> 292	<sup>R</sup> 14,640	24	48	29	101
August .....	<sup>R</sup> 13	<sup>R</sup> 3,245	5	<sup>R</sup> 1,841	<sup>R</sup> 61	<sup>R</sup> 9,470	<sup>R</sup> 277	<sup>R</sup> 14,914	24	44	31	99
September .....	<sup>R</sup> 15	<sup>R</sup> 3,158	5	<sup>R</sup> 1,702	<sup>R</sup> 51	<sup>R</sup> 8,858	<sup>R</sup> 259	<sup>R</sup> 14,048	22	42	27	91
October .....	14	3,232	5	<sup>R</sup> 1,727	69	<sup>R</sup> 8,964	<sup>R</sup> 273	<sup>R</sup> 14,285	23	11	26	60
November .....	12	<sup>R</sup> 3,024	5	<sup>R</sup> 1,711	<sup>R</sup> 56	<sup>R</sup> 8,869	<sup>R</sup> 170	<sup>R</sup> 13,847	25	21	24	70
December .....	9	<sup>R</sup> 2,847	5	<sup>R</sup> 1,809	50	<sup>R</sup> 8,640	<sup>R</sup> 240	<sup>R</sup> 13,599	24	26	25	75
Average .....	13	<sup>R</sup> 3,089	5	<sup>R</sup> 1,743	<sup>R</sup> 60	<sup>R</sup> 8,965	<sup>R</sup> 231	<sup>R</sup> 14,107	24	37	26	88
2020 January .....	14	2,771	5	1,673	65	8,437	216	13,181	25	45	25	95
February .....	8	2,827	5	1,629	57	8,635	118	13,279	22	29	21	73
March .....	8	2,930	5	1,387	33	7,493	83	11,939	17	44	19	80
April .....	6	2,875	5	691	44	5,637	98	9,357	15	39	18	72
May .....	14	<sup>R</sup> 2,919	5	596	44	6,923	56	<sup>R</sup> 10,556	18	40	19	77
June .....	11	3,020	5	786	55	7,980	193	12,050	23	54	24	100
6-Month Average .....	10	2,890	5	1,126	50	7,513	127	11,721	20	42	21	83
2019 6-Month Average .....	12	3,055	5	1,713	60	8,932	210	13,987	25	43	25	93
2018 6-Month Average .....	12	3,064	5	1,673	64	8,924	247	13,989	51	48	41	139

<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> Hydrocarbon gas liquids.

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

<sup>d</sup> There is a discontinuity in this time series between 2009 and 2010 due to a change in data sources.

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

<sup>g</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>h</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>i</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.

<sup>R</sup>=Revised. NA=Not available.

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

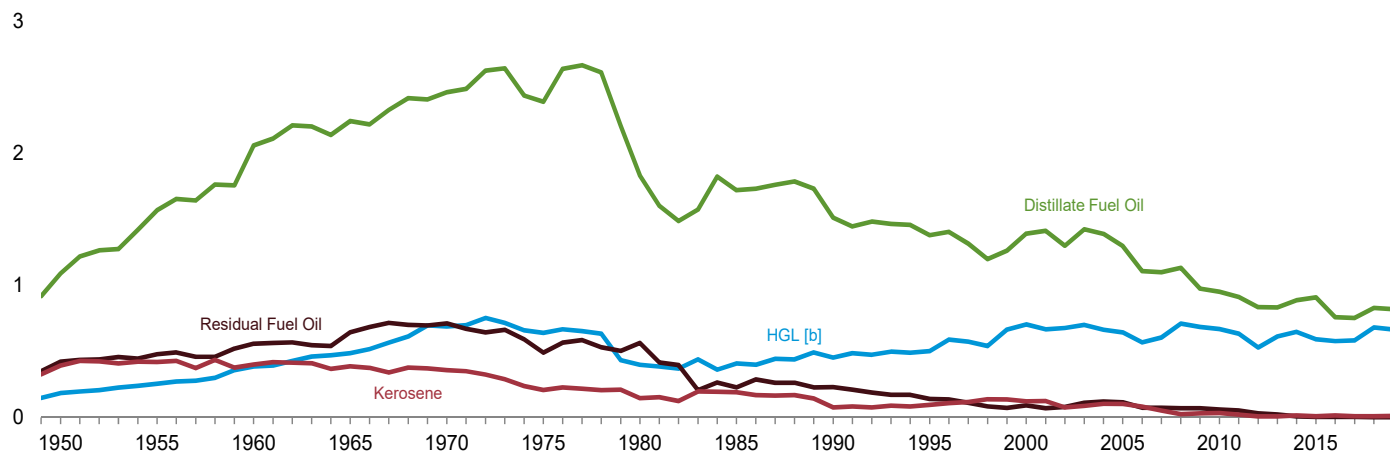
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#petroleum> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

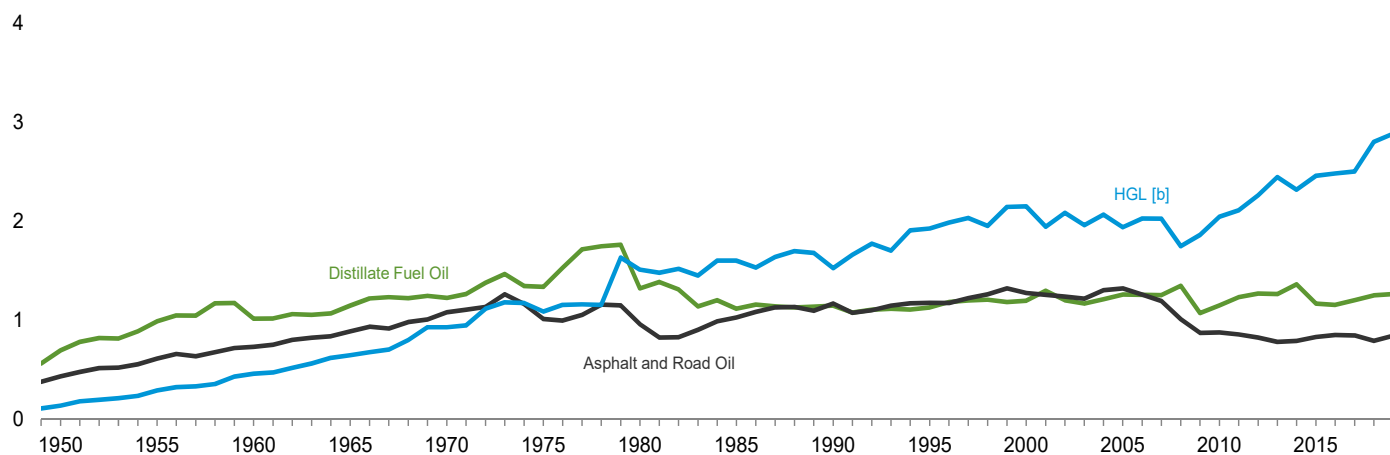
**Figure 3.8a Heat Content of Petroleum Consumption by End-Use Sector, 1949-2019**

(Quadrillion Btu)

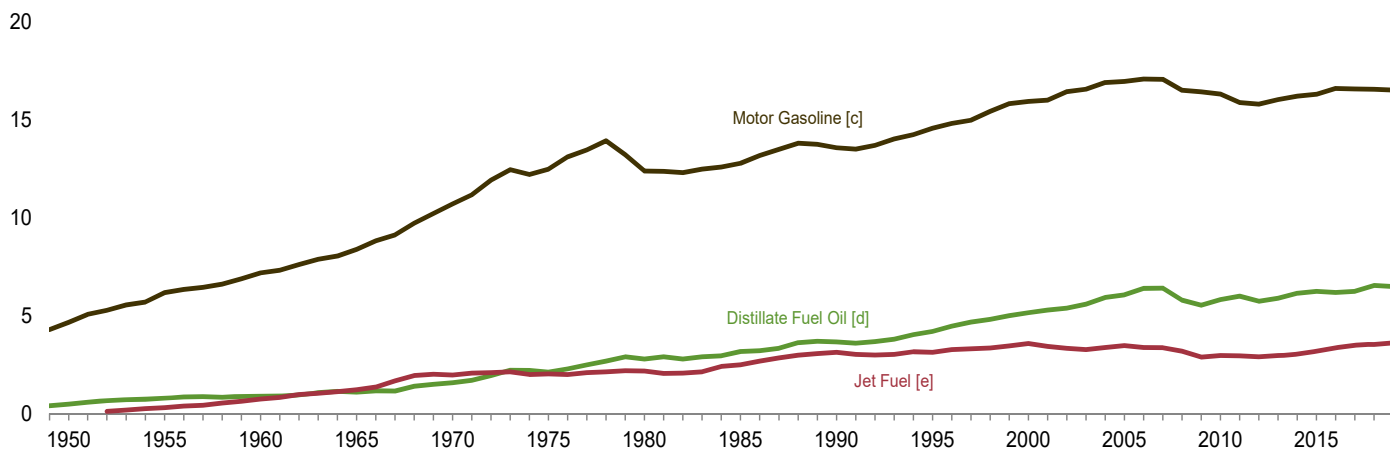
Residential and Commercial [a] Sectors, Selected Products



Industrial [a] Sector, Selected Products



Transportation Sector, Selected Products



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

[b] Hydrocarbon gas liquids.

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

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

[e] Beginning in 2005, includes kerosene-type jet fuel only.

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

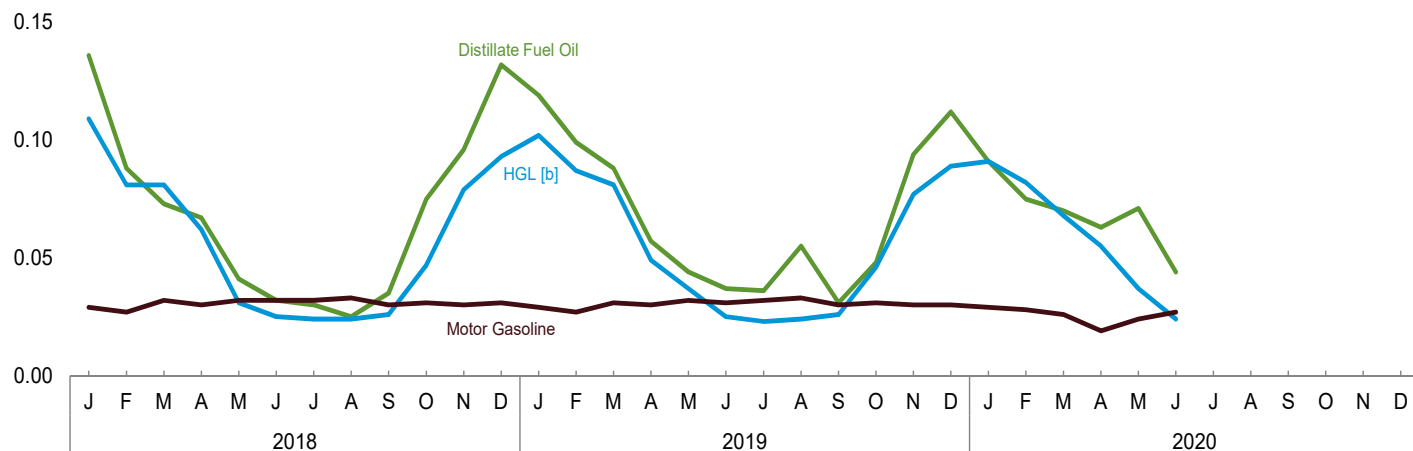
Web Page: <http://www.eia.gov/totalenergy/data/monthly/#petroleum>.

Sources: Tables 3.8a–3.8c.

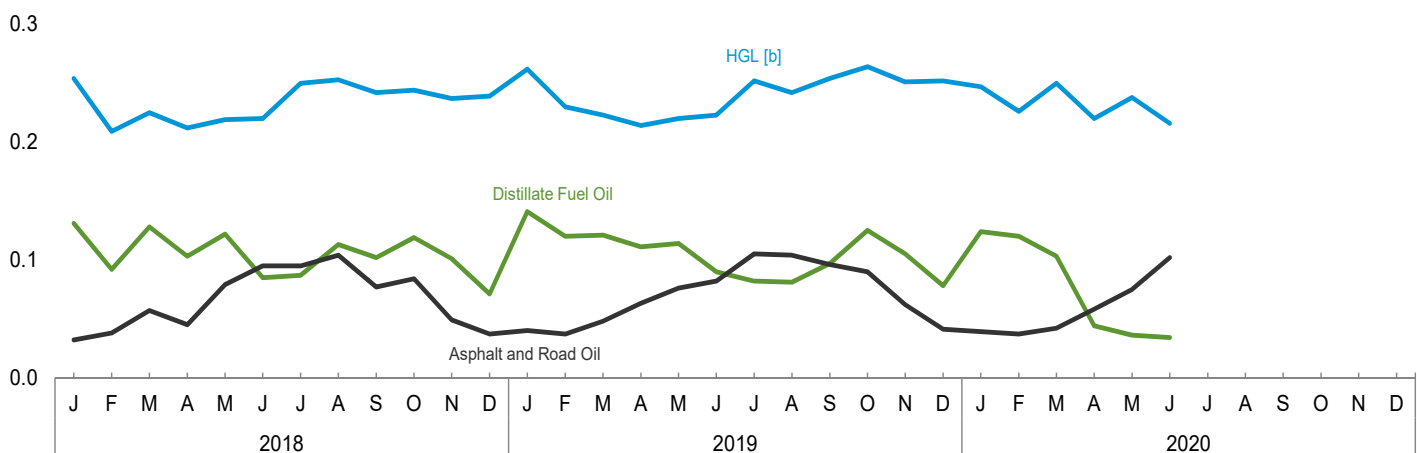
**Figure 3.8b Heat Content of Petroleum Consumption by End-Use Sector, Monthly**

(Quadrillion Btu)

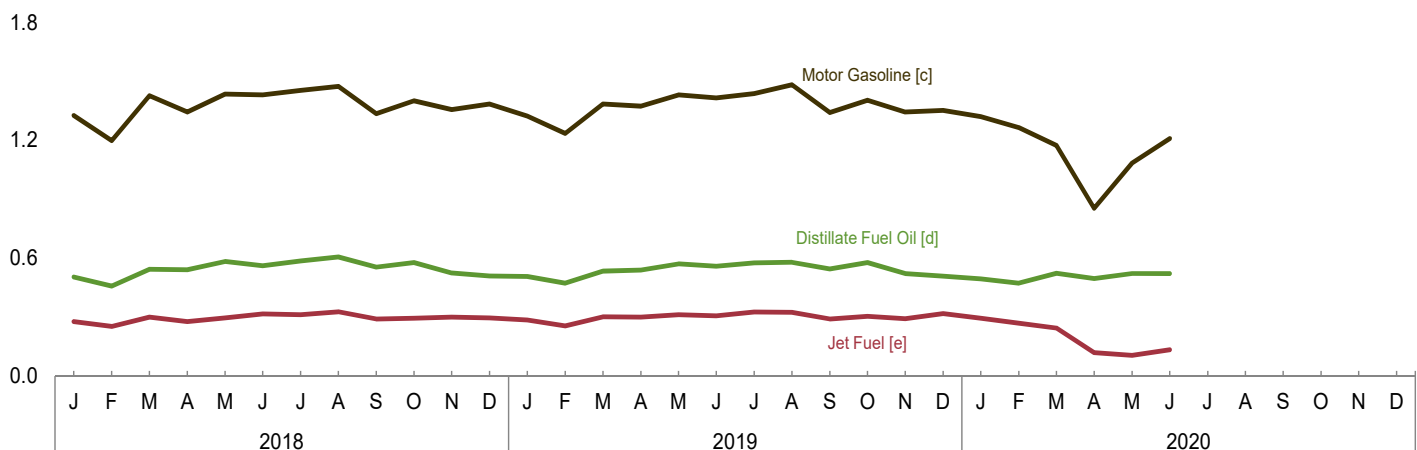
Residential and Commercial [a] Sectors, Selected Products



Industrial [a] Sector, Selected Products



Transportation Sector, Selected Products



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

[b] Hydrocarbon gas liquids.

[c] Includes fuel ethanol blended into motor gasoline.

[d] Includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

[e] Includes kerosene-type jet fuel only.

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

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

Sources: Tables 3.8a–3.8c.

**Table 3.8a Heat Content of Petroleum Consumption: Residential and Commercial Sectors**  
(Trillion Btu)

	Residential Sector				Commercial Sector <sup>a</sup>						
	Distillate Fuel Oil	HGL <sup>b</sup>	Kero-sene	Total	Distillate Fuel Oil	HGL <sup>b</sup>	Kero-sene	Motor Gasoline <sup>c,d</sup>	Petroleum Coke	Residual Fuel Oil	Total
		Propane				Propane					
1950 Total .....	829	146	347	1,322	262	39	47	100	NA	424	872
1955 Total .....	1,194	202	371	1,767	377	54	51	133	NA	480	1,095
1960 Total .....	1,568	305	354	2,228	494	81	48	67	NA	559	1,248
1965 Total .....	1,713	386	334	2,432	534	103	54	77	NA	645	1,413
1970 Total .....	1,878	549	298	2,726	587	143	61	86	NA	714	1,592
1975 Total .....	1,807	512	161	2,479	587	130	49	89	NA	492	1,346
1980 Total .....	1,316	312	107	1,734	518	88	41	107	NA	565	1,318
1985 Total .....	1,092	315	159	1,566	631	95	33	96	NA	228	1,083
1990 Total .....	978	353	64	1,395	536	102	12	111	0	230	991
1995 Total .....	904	395	74	1,374	478	109	22	18	(s)	141	769
2000 Total .....	904	556	95	1,554	490	151	30	44	(s)	92	807
2001 Total .....	907	526	95	1,529	508	143	31	37	(s)	70	790
2002 Total .....	859	538	60	1,457	444	141	16	45	(s)	80	726
2003 Total .....	931	545	70	1,547	496	157	19	60	(s)	111	842
2004 Total .....	923	512	85	1,520	470	152	20	45	(s)	122	810
2005 Total .....	853	514	84	1,450	447	132	22	46	(s)	116	762
2006 Total .....	709	446	66	1,222	400	123	15	48	(s)	75	662
2007 Total .....	721	484	44	1,249	381	122	9	60	(s)	75	648
2008 Total .....	750	553	21	1,325	384	158	4	45	(s)	71	663
2009 Total .....	582	548	28	1,158	395	139	4	52	(s)	71	662
2010 Total .....	562	530	29	1,120	391	140	5	52	(s)	62	650
2011 Total .....	523	493	19	1,034	391	143	3	44	(s)	54	635
2012 Total .....	482	396	8	886	355	136	1	39	(s)	31	562
2013 Total .....	491	463	8	963	344	152	1	40	(s)	24	561
2014 Total .....	533	490	14	1,036	357	160	2	54	1	8	581
2015 Total .....	551	446	10	1,007	360	148	1	<sup>d</sup> 376	1	4	890
2016 Total .....	435	430	14	878	326	150	2	375	(s)	4	858
2017 Total .....	432	431	8	871	323	156	1	361	(s)	4	845
2018 January .....	83	84	5	172	53	25	1	29	(s)	1	108
February .....	54	62	(s)	116	34	19	(s)	27	(s)	(s)	80
March .....	45	62	1	107	28	19	(s)	32	(s)	(s)	80
April .....	41	46	(s)	88	26	16	(s)	30	(s)	(s)	72
May .....	25	22	1	48	16	10	(s)	32	0	(s)	58
June .....	19	17	(s)	36	12	8	(s)	32	0	(s)	53
July .....	18	15	(s)	34	12	8	(s)	32	0	(s)	52
August .....	15	16	(s)	31	10	8	(s)	33	0	(s)	51
September .....	21	17	(s)	39	14	9	(s)	30	(s)	(s)	52
October .....	46	35	(s)	80	29	13	(s)	31	(s)	(s)	73
November .....	59	60	(s)	119	37	19	(s)	30	(s)	(s)	87
December .....	81	71	(s)	152	51	22	(s)	31	(s)	(s)	104
Total .....	508	507	8	1,022	323	176	1	366	(s)	3	870
2019 January .....	73	79	3	155	46	<sup>R</sup> 23	1	29	(s)	(s)	100
February .....	61	67	2	130	39	20	(s)	27	(s)	(s)	87
March .....	54	62	<sup>R</sup> (s)	116	34	19	(s)	31	(s)	(s)	85
April .....	35	36	(s)	71	22	13	(s)	30	(s)	(s)	<sup>R</sup> 66
May .....	27	27	(s)	54	17	11	(s)	<sup>R</sup> 32	0	(s)	60
June .....	23	17	(s)	40	14	8	(s)	31	0	(s)	54
July .....	22	15	(s)	37	14	8	(s)	32	0	(s)	54
August .....	34	<sup>R</sup> 15	(s)	49	21	8	(s)	33	0	(s)	63
September .....	19	17	1	37	12	9	(s)	30	0	(s)	50
October .....	29	34	(s)	63	19	13	(s)	31	0	(s)	<sup>R</sup> 62
November .....	58	58	2	<sup>R</sup> 117	37	18	(s)	30	0	(s)	85
December .....	68	68	2	138	43	21	(s)	30	(s)	(s)	95
Total .....	501	<sup>R</sup> 495	<sup>R</sup> 10	<sup>R</sup> 1,007	319	172	2	<sup>R</sup> 365	(s)	3	<sup>R</sup> 861
2020 January .....	56	70	3	129	35	21	1	29	(s)	(s)	87
February .....	46	63	4	112	29	19	1	28	(s)	(s)	77
March .....	43	51	1	<sup>R</sup> 94	27	17	(s)	26	0	(s)	70
April .....	38	41	(s)	80	24	14	(s)	19	0	(s)	58
May .....	<sup>R</sup> 43	26	(s)	<sup>R</sup> 70	<sup>R</sup> 28	11	(s)	24	0	(s)	<sup>R</sup> 63
June .....	27	16	(s)	43	17	8	(s)	27	0	(s)	52
6-Month Total .....	253	267	8	528	161	90	1	153	(s)	1	407
2019 6-Month Total .....	272	287	6	565	173	95	1	181	(s)	1	451
2018 6-Month Total .....	267	292	7	566	170	97	1	180	(s)	2	451

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

<sup>b</sup> Hydrocarbon gas liquids.

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

<sup>d</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>R</sup>=Revised. NA=Not available. (s)=Less than 0.5 trillion Btu and greater than -0.5 trillion Btu.

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

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

Sources: See end of section.

**Table 3.8b Heat Content of Petroleum Consumption: Industrial Sector**  
(Trillion Btu)

	Industrial Sector <sup>a</sup>												
	Asphalt and Road Oil	Distillate Fuel Oil	Hydrocarbon Gas Liquids				Kerosene	Lubricants	Motor Gasoline <sup>d,e</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>f</sup>	Total
			Propane/Propylene			Total <sup>c</sup>							
			Propane	Propylene	Total <sup>b</sup>								
1950 Total .....	435	698	17	18	34	138	274	94	251	90	1,416	546	3,943
1955 Total .....	615	991	83	30	113	293	241	103	332	147	1,573	798	5,093
1960 Total .....	734	1,016	137	47	184	461	161	107	381	328	1,584	947	5,720
1965 Total .....	890	1,150	213	63	276	649	165	137	342	444	1,582	1,390	6,750
1970 Total .....	1,082	1,226	282	77	359	930	185	155	288	446	1,624	1,817	7,754
1975 Total .....	1,014	1,339	339	84	423	1,126	119	149	223	540	1,509	2,071	8,092
1980 Total .....	962	1,324	625	100	726	1,718	181	182	158	516	1,349	3,073	9,463
1985 Total .....	1,029	1,119	696	101	798	1,813	44	166	218	575	748	1,944	7,655
1990 Total .....	1,170	1,150	660	147	807	1,781	12	186	185	714	411	2,588	8,199
1995 Total .....	1,178	1,130	794	220	1,014	2,269	15	178	200	721	337	2,498	8,525
2000 Total .....	1,276	1,199	703	315	1,017	2,498	16	190	150	796	241	2,635	8,999
2001 Total .....	1,257	1,299	623	294	917	2,212	23	174	295	858	203	2,793	9,113
2002 Total .....	1,240	1,203	730	326	1,056	2,313	14	172	308	842	190	2,816	9,099
2003 Total .....	1,220	1,169	649	333	982	2,185	24	159	323	825	220	3,043	9,169
2004 Total .....	1,304	1,213	752	358	1,109	2,292	28	161	371	937	249	3,205	9,760
2005 Total .....	1,323	1,262	709	341	1,050	2,138	39	160	354	894	281	3,122	9,574
2006 Total .....	1,261	1,258	731	375	1,106	2,171	30	156	374	938	239	3,276	9,703
2007 Total .....	1,197	1,256	751	352	1,103	2,207	13	161	302	910	193	3,134	9,373
2008 Total .....	1,012	1,348	547	323	870	1,904	4	150	245	870	194	2,788	8,514
2009 Total .....	873	1,073	537	374	911	1,992	4	135	238	805	130	2,483	7,733
2010 Total .....	878	1,153	517	R 428	R 944	R 2,204	7	136	260	694	120	2,645	R 8,096
2011 Total .....	859	1,236	551	R 434	R 985	R 2,169	4	127	254	663	135	2,621	R 8,069
2012 Total .....	827	1,271	674	R 432	R 1,107	R 2,349	2	118	252	717	70	2,474	R 8,080
2013 Total .....	783	1,266	736	429	1,165	2,544	1	125	263	663	48	2,583	R 8,277
2014 Total .....	793	1,366	562	R 417	R 979	2,409	3	131	210	653	41	2,430	R 8,035
2015 Total .....	832	1,170	612	R 413	R 1,025	R 2,621	2	142	* 258	663	34	2,435	R 8,156
2016 Total .....	853	1,157	584	R 423	R 1,007	R 2,597	2	135	262	653	52	2,553	R 8,265
2017 Total .....	849	1,205	532	R 432	R 964	R 2,679	1	125	264	610	50	2,667	R 8,451
2018 January .....	32	131	64	R 39	R 104	R 268	1	9	22	54	3	223	R 744
February .....	38	92	49	R 34	R 82	R 224	(s)	11	19	25	3	220	R 632
March .....	57	128	43	R 36	R 79	R 239	(s)	12	23	48	3	242	R 752
April .....	45	103	39	33	72	223	(s)	10	22	48	5	201	657
May .....	79	122	30	R 37	67	234	(s)	9	23	52	3	213	R 737
June .....	95	85	31	R 35	R 66	R 233	(s)	11	23	56	3	232	R 738
July .....	95	87	53	R 35	R 88	R 270	(s)	11	24	51	4	218	R 760
August .....	104	113	50	R 37	87	278	(s)	12	24	74	3	228	R 835
September .....	77	102	62	35	97	R 267	(s)	8	22	65	4	190	733
October .....	84	119	52	R 37	R 89	R 266	(s)	10	23	72	3	233	R 810
November .....	49	101	41	R 38	R 79	R 262	(s)	10	22	42	4	217	R 707
December .....	37	71	42	R 39	R 80	R 267	(s)	8	23	42	4	213	R 665
Total .....	793	1,254	554	R 436	R 990	R 3,029	2	122	269	629	43	2,630	R 8,771
2019 January .....	R 40	R 141	R 60	38	R 98	R 294	1	10	R 22	R 47	4	R 225	R 783
February .....	R 37	R 120	R 45	32	R 77	R 255	(s)	8	20	14	3	R 162	R 620
March .....	R 48	R 121	R 33	31	R 64	R 246	(s)	R 9	R 23	R 49	3	R 204	R 701
April .....	63	R 111	R 26	33	R 60	239	(s)	R 13	22	38	2	R 225	R 714
May .....	76	R 114	28	36	64	R 247	(s)	R 9	23	53	2	R 232	R 756
June .....	R 82	R 90	R 35	R 36	R 71	R 255	(s)	9	23	68	4	R 205	R 735
July .....	105	R 82	R 46	35	R 82	R 286	(s)	R 11	23	68	4	R 206	R 785
August .....	104	R 81	R 40	35	R 75	R 278	(s)	10	24	56	4	R 240	R 797
September .....	R 96	97	R 61	R 33	R 94	R 285	(s)	R 8	22	R 41	3	R 218	R 770
October .....	R 90	125	R 60	38	R 97	R 287	(s)	12	23	R 42	4	217	R 800
November .....	R 62	R 105	R 57	35	R 92	R 270	(s)	9	22	R 60	R 2	219	R 749
December .....	41	R 78	R 50	36	R 86	R 280	(s)	8	22	R 64	3	R 235	R 732
Total .....	R 844	R 1,265	R 542	R 418	960	R 3,222	2	R 118	R 269	R 600	38	R 2,585	R 8,943
2020 January .....	39	124	R 38	33	71	260	1	11	21	R 40	3	225	723
February .....	37	120	56	28	84	224	1	9	21	41	2	221	675
March .....	42	103	43	31	74	R 277	(s)	6	19	41	1	230	718
April .....	58	44	30	32	62	224	(s)	7	14	28	1	194	570
May .....	75	R 36	37	33	69	258	(s)	7	18	34	1	211	R 640
June .....	102	34	20	30	51	247	(s)	9	20	33	3	184	630
6-Month Total .....	353	460	224	187	411	1,489	2	49	112	217	11	1,264	3,957
2019 6-Month Total .....	347	697	228	206	434	1,536	1	59	133	268	18	1,252	4,309
2018 6-Month Total .....	346	661	256	215	471	1,420	1	63	133	283	21	1,332	4,260

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

<sup>b</sup> Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

<sup>c</sup> Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

<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> 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. (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>c</sup>	HGL <sup>b</sup>	Jet Fuel <sup>e</sup>	Lubricants	Motor Gasoline <sup>f,g</sup>	Residual Fuel Oil	Total	Distillate Fuel Oil <sup>h</sup>	Petroleum Coke	Residual Fuel Oil <sup>i</sup>	Total
			Propane <sup>d</sup>									
<b>1950 Total</b> .....	199	480	3	( <sup>e</sup> )	141	4,664	1,201	6,690	32	NA	440	472
<b>1955 Total</b> .....	354	791	13	301	155	6,175	1,009	8,799	32	NA	439	471
<b>1960 Total</b> .....	298	892	19	739	152	7,183	844	10,125	22	NA	530	553
<b>1965 Total</b> .....	222	1,093	32	1,215	149	8,386	770	11,866	29	NA	693	722
<b>1970 Total</b> .....	100	1,569	44	1,973	147	10,716	761	15,311	141	19	1,958	2,117
<b>1975 Total</b> .....	71	2,121	43	2,029	155	12,485	711	17,615	226	2	2,937	3,166
<b>1980 Total</b> .....	64	2,795	18	2,179	172	12,383	1,398	19,009	169	5	2,459	2,634
<b>1985 Total</b> .....	50	3,170	30	2,497	156	12,784	786	19,472	85	7	998	1,090
<b>1990 Total</b> .....	45	3,661	23	3,129	176	13,575	1,016	21,626	97	30	1,163	1,289
<b>1995 Total</b> .....	40	4,191	18	3,132	168	14,576	911	23,036	108	81	566	755
<b>2000 Total</b> .....	36	5,159	12	3,580	179	15,933	888	25,787	175	99	871	1,144
<b>2001 Total</b> .....	35	5,286	14	3,426	164	16,013	586	25,524	170	103	1,003	1,276
<b>2002 Total</b> .....	34	5,387	14	3,340	162	16,437	677	26,051	127	175	659	961
<b>2003 Total</b> .....	30	5,584	18	3,265	150	16,565	571	26,184	161	175	869	1,205
<b>2004 Total</b> .....	31	5,925	19	3,383	152	16,901	740	27,150	111	211	879	1,201
<b>2005 Total</b> .....	35	6,068	28	3,475	151	16,958	837	27,553	114	231	876	1,222
<b>2006 Total</b> .....	33	6,390	28	3,379	147	17,088	906	27,972	73	203	361	637
<b>2007 Total</b> .....	32	6,411	22	3,358	152	17,066	994	28,034	89	163	397	648
<b>2008 Total</b> .....	28	5,792	40	3,193	141	16,510	926	26,630	73	146	240	459
<b>2009 Total</b> .....	27	5,537	28	2,883	127	16,425	791	25,817	70	132	181	382
<b>2010 Total</b> .....	27	5,826	<sup>d</sup> 7	2,963	155	16,320	892	26,190	80	137	154	370
<b>2011 Total</b> .....	27	5,997	7	2,950	148	15,877	776	25,783	64	138	93	295
<b>2012 Total</b> .....	25	5,736	7	2,901	135	15,795	671	25,270	52	85	77	214
<b>2013 Total</b> .....	22	5,894	7	2,969	143	16,030	581	25,646	55	123	77	255
<b>2014 Total</b> .....	22	6,154	7	3,042	149	16,209	447	26,030	82	118	95	295
<b>2015 Total</b> .....	21	6,251	7	3,204	163	<sup>g</sup> 16,308	463	26,416	70	112	94	276
<b>2016 Total</b> .....	20	6,197	7	3,350	154	16,601	623	26,953	55	118	71	244
<b>2017 Total</b> .....	21	6,248	7	3,481	142	16,576	665	27,140	55	97	66	218
<b>2018 January</b> .....	1	504	1	276	10	1,326	36	2,155	30	11	23	64
February .....	1	458	1	252	12	1,199	45	1,968	4	9	4	17
March .....	2	544	1	300	13	1,428	39	2,327	4	7	4	15
April .....	2	541	1	277	12	1,344	68	2,244	4	8	4	17
May .....	2	583	1	296	10	1,436	49	2,377	5	6	5	16
June .....	2	561	1	316	13	1,431	44	2,367	5	9	6	20
July .....	3	586	1	312	13	1,455	58	2,426	4	10	6	20
August .....	2	606	1	327	13	1,475	48	2,472	4	10	6	20
September .....	1	554	1	290	10	1,336	56	2,247	4	9	6	19
October .....	3	578	1	294	11	1,402	44	2,333	4	6	6	16
November .....	1	524	1	299	11	1,357	55	2,248	5	8	5	18
December .....	2	509	1	295	9	1,385	62	2,263	5	9	4	18
<b>Total</b> .....	<b>22</b>	<b>6,550</b>	<b>8</b>	<b>3,533</b>	<b>137</b>	<b>16,573</b>	<b>604</b>	<b>27,427</b>	<b>81</b>	<b>101</b>	<b>78</b>	<b>260</b>
<b>2019 January</b> .....	<sup>R</sup> 1	<sup>R</sup> 506	1	<sup>R</sup> 285	11	<sup>R</sup> 1,324	<sup>R</sup> 51	<sup>R</sup> 2,179	6	9	7	22
February .....	1	<sup>R</sup> 472	1	255	9	<sup>R</sup> 1,236	<sup>R</sup> 42	<sup>R</sup> 2,016	4	8	4	16
March .....	2	<sup>R</sup> 534	1	<sup>R</sup> 301	<sup>R</sup> 10	<sup>R</sup> 1,385	<sup>R</sup> 36	<sup>R</sup> 2,269	4	8	4	15
April .....	2	<sup>R</sup> 540	1	<sup>R</sup> 299	<sup>R</sup> 15	<sup>R</sup> 1,374	<sup>R</sup> 27	<sup>R</sup> 2,257	3	5	4	12
May .....	2	<sup>R</sup> 571	1	<sup>R</sup> 312	11	<sup>R</sup> 1,432	<sup>R</sup> 30	<sup>R</sup> 2,359	4	8	5	17
June .....	2	<sup>R</sup> 558	1	306	10	<sup>R</sup> 1,416	<sup>R</sup> 52	<sup>R</sup> 2,346	4	6	5	16
July .....	3	576	1	<sup>R</sup> 325	13	<sup>R</sup> 1,438	57	<sup>R</sup> 2,412	4	9	6	18
August .....	2	<sup>R</sup> 579	1	<sup>R</sup> 324	11	<sup>R</sup> 1,483	<sup>R</sup> 54	<sup>R</sup> 2,454	4	8	6	18
September .....	2	545	1	<sup>R</sup> 290	<sup>R</sup> 9	<sup>R</sup> 1,342	<sup>R</sup> 49	<sup>R</sup> 2,238	4	7	5	16
October .....	2	577	1	<sup>R</sup> 304	13	<sup>R</sup> 1,404	<sup>R</sup> 53	<sup>R</sup> 2,353	4	2	5	11
November .....	2	<sup>R</sup> 522	1	291	10	<sup>R</sup> 1,344	<sup>R</sup> 32	<sup>R</sup> 2,202	4	4	5	12
December .....	1	<sup>R</sup> 508	1	<sup>R</sup> 318	9	<sup>R</sup> 1,353	<sup>R</sup> 47	<sup>R</sup> 2,237	4	5	5	14
<b>Total</b> .....	<b><sup>R</sup> 23</b>	<b><sup>R</sup> 6,488</b>	<b>8</b>	<b><sup>R</sup> 3,608</b>	<b><sup>R</sup> 132</b>	<b><sup>R</sup> 16,532</b>	<b><sup>R</sup> 531</b>	<b><sup>R</sup> 27,322</b>	<b>51</b>	<b>78</b>	<b>59</b>	<b>189</b>
<b>2020 January</b> .....	2	494	1	294	12	1,321	42	2,167	4	8	5	17
February .....	1	472	1	268	10	1,265	21	2,038	4	5	4	12
March .....	1	523	1	244	6	1,174	16	1,964	3	8	4	14
April .....	1	496	1	118	8	854	18	1,496	3	7	3	13
May .....	2	<sup>R</sup> 521	1	105	8	1,084	11	<sup>R</sup> 1,731	3	7	4	14
June .....	2	521	1	134	10	1,209	36	1,913	4	9	4	18
<b>6-Month Total</b> .....	<b>9</b>	<b>3,027</b>	<b>4</b>	<b>1,162</b>	<b>55</b>	<b>6,908</b>	<b>145</b>	<b>11,310</b>	<b>21</b>	<b>44</b>	<b>24</b>	<b>89</b>
<b>2019 6-Month Total</b> .....	<b>11</b>	<b>3,182</b>	<b>4</b>	<b>1,758</b>	<b>66</b>	<b>8,167</b>	<b>239</b>	<b>13,426</b>	<b>26</b>	<b>44</b>	<b>28</b>	<b>99</b>
<b>2018 6-Month Total</b> .....	<b>11</b>	<b>3,192</b>	<b>4</b>	<b>1,717</b>	<b>70</b>	<b>8,163</b>	<b>281</b>	<b>13,437</b>	<b>53</b>	<b>49</b>	<b>46</b>	<b>149</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> Hydrocarbon gas liquids.

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

<sup>d</sup> There is a discontinuity in this time series between 2009 and 2010 due to a change in data sources.

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

<sup>g</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>h</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>i</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.

R=Revised. NA=Not available.

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

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

Sources: See end of section.

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

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

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

**Note 3. Historical Petroleum Data.** Detailed information on petroleum data through 1993 can be found in Notes 1–6 on pages 60 and 61 in the July 2013 *Monthly Energy Review* (MER) at <http://www.eia.gov/totalenergy/data/monthly/archive/00351307.pdf>. The notes discuss:

Note 1, "Petroleum Survey Respondents": In 1993, EIA added numerous companies that produce, blend, store, or import oxygenates to the monthly surveys.

Note 2, "Motor Gasoline": In 1981, EIA expanded its universe to include nonrefinery blenders and separated blending components from finished motor gasoline as a reporting category. In 1993, EIA made adjustments to finished motor gasoline product supplied data to more accurately account for fuel ethanol and motor gasoline blending components blended into finished motor gasoline.

Note 3, "Distillate and Residual Fuel Oils": In 1981, EIA eliminated the requirement to report crude oil in pipelines or burned on leases as either distillate or residual fuel oil.

Note 4, "Petroleum New Stock Basis": In 1975, 1979, 1981, and 1983, EIA added numerous respondents to bulk terminal and pipeline surveys; in 1984, EIA made changes in the reporting of natural gas liquids; and in 1993, EIA changed how it collected bulk terminal and pipeline stocks of oxygenates. These changes affected stocks reported and stock change calculations.

Note 5, "Stocks of Alaskan Crude Oil": In 1981, EIA began to include data for stocks of Alaskan crude oil in transit.

Note 6, "Petroleum Data Discrepancies": In 1976, 1978, and 1979, there are some small discrepancies between data in the MER and the *Petroleum Supply Annual*.

### Table 3.1 Sources

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

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

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

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

### Table 3.2 Sources

1949–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports; and U.S. Energy Information Administration (EIA) estimates. (For 1967–1975, refinery and blender net production estimates for propylene are equal to "Propane/Propylene Production at Refineries for Chemical Use"; and estimates for propane are equal to total propane/propylene minus propylene.)

1976–1980: EIA, Energy Data Reports, *Petroleum Statement, Annual*, annual reports, and estimates. (Refinery and blender net production estimates for propylene are equal to "Propane/Propylene Production at Refineries for Chemical Use"; and estimates for propane are equal to total propane/propylene minus propylene.)

1981–2019: EIA, *Petroleum Supply Annual*, annual reports, unpublished revisions, and estimates. (For 1981–1985, refinery and blender net production estimates for propylene are equal to "Propane/Propylene Production at Refineries for Petrochemical Use"; and estimates for propane are equal to total propane/propylene minus propylene. For 1986–1988, refinery and blender net production estimates for propylene are created using the 1989 annual propylene share of "Net Refinery Production of Propane/Propylene"; and estimates for propane are equal to total propane/propylene minus propylene.)

2020: 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.

### Table 3.5 Sources

1949–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports; and U.S. Energy Information Administration (EIA) estimates. (For 1949–1966, product supplied estimates for total propane/propylene are created using sales and shipments data from Bureau of Mines, Mineral Industry Surveys, *Sales of Liquefied Petroleum Gases and Ethane*, annual reports, and *Shipments of Liquefied Petroleum Gases and Ethane*, annual reports—annual growth rates of sales and shipments are applied to the 1967 total propane/propylene product supplied value to create historical annual estimates. For 1949–1966, product supplied estimates for propylene are created using the 1967 annual propylene share of total propane/propylene product supplied; and estimates for propane are equal to total propane/propylene minus propylene. For 1967–1975, product supplied estimates for propylene are equal to propylene refinery and blender net production from Table 3.2; and estimates for propane are equal to total propane/propylene minus propylene.)

1976–1980: EIA, Energy Data Reports, *Petroleum Statement, Annual*, annual reports, and estimates. (Product supplied estimates for propylene are equal to propylene refinery and blender net production from Table 3.2; and estimates for propane are equal to total propane/propylene minus propylene.)

1981–2019: EIA, *Petroleum Supply Annual*, annual reports, unpublished revisions, and estimates. (For 1981–1992, product supplied estimates for propylene are equal to propylene refinery and blender net production from Table 3.2; and estimates for propane are equal to total propane/propylene minus propylene. For 1993–2009, product supplied



estimates for propylene are equal to propylene refinery and blender net production from Table 3.2, plus propylene imports from Table 3.3b; and estimates for propane are equal to total propane/propylene minus propylene.)

2020: 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.

## 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 factor 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.

2009–2011: Consumption data for biodiesel are calculated using biodiesel data from U.S. Energy Information Administration (EIA), 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” (the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1). Consumption data for other renewable diesel fuel are set equal to refinery and blender net inputs data from EIA-810, “Monthly Refinery Report,” and EIA-815, “Monthly Bulk Terminal and Blender Report” (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 consumption data for biodiesel and other renewable diesel fuel, 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 values for distillate fuel oil (excluding biodiesel and other renewable diesel fuel), biodiesel, and other renewable diesel fuel.

2012 forward: Consumption data for biodiesel are from Table 10.4. Consumption data for other renewable diesel fuel are set equal to refinery and blender net inputs data from EIA-810, “Monthly Refinery Report,” and EIA-815, “Monthly Bulk Terminal and Blender Report” (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 consumption data for biodiesel and other renewable diesel fuel, 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 the values for distillate fuel oil (excluding biodiesel and other renewable diesel fuel), biodiesel, and other renewable diesel fuel.

### *Hydrocarbon Gas Liquids (HGL)—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 heat content factor in Table A1.

### *Hydrocarbon Gas Liquids (HGL)—Propylene*

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

### *Hydrocarbon Gas Liquids (HGL)—Propane/Propylene Total*

Prior to the current two months, total propane/propylene product supplied is the sum of the data in trillion Btu for propane and propylene.

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

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

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

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

### ***Jet Fuel***

Product supplied data in thousand barrels per day for kerosene-type jet fuel and, through 2004, naphtha-type jet fuel are from 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 jet fuel product supplied is the sum of the data in trillion Btu for kerosene-type and naphtha-type jet fuel.

### ***Kerosene***

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

### ***Lubricants***

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

### ***Motor Gasoline***

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

### ***Other Petroleum Products***

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

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

### ***Petroleum Coke***

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

### ***Residual Fuel Oil***

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

### ***Total Petroleum***

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

## **Tables 3.7a–3.7c Sources**

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

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

1960–1972: EIA, State Energy Data System.

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

1973–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement Annual*, annual reports.

1976–1980: EIA, Energy Data Reports, *Petroleum Statement Annual*, annual reports.

1981–2019: EIA, *Petroleum Supply Annual* (PSA), annual reports, and unpublished revisions.

2020: EIA, *Petroleum Supply Monthly* (PSM), monthly reports.

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

### ***Asphalt and Road Oil***

All consumption of asphalt and road oil is assigned to the industrial sector.

### ***Aviation Gasoline***

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

### ***Distillate Fuel Oil***

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

#### ***Distillate Fuel Oil, Electric Power Sector***

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

#### ***Distillate Fuel Oil, End-Use Sectors, Annual Data***

The aggregate end-use amount is total distillate fuel oil product 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 product 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 product supplied minus the amount consumed by the residential, commercial, industrial, and electric power sectors.

### ***Hydrocarbon Gas Liquids (HGL)—Propane***

Annual residential sector propane consumption: Through 2002, annual residential sector propane consumption is estimated by applying the average of the state residential shares for 2003–2008 to the combined residential and commercial propane sales. Beginning in 2003, annual residential sector propane consumption is assumed to equal propane retail sales to the residential sector and sales to retailers/cylinder markets.

Monthly residential sector propane consumption: Beginning in 1973, annual residential sector propane consumption is split into the estimated portion for residential space heating and water heating, and the estimated portion for all other residential uses. The annual values in thousand barrels for residential space heating and water heating are allocated to the months in proportion to U.S. heating degree days in Table 1.9. The annual values in thousand barrels for all other residential uses are allocated to the months by dividing the annual values by the number of days in the year and then multiplying by the number of days in the month. Monthly total residential sector propane consumption is the sum of the monthly values for residential space heating and water heating and for all other residential uses.

Annual commercial sector propane consumption: Through 2002, annual commercial sector propane consumption is equal to the combined residential and commercial propane sales minus residential sector propane consumption. Beginning in 2003, annual commercial sector propane consumption is assumed to equal commercial sector propane sales.

Monthly commercial sector propane consumption: Beginning in 1973, annual commercial sector propane consumption is split into the estimated portion for commercial space heating and water heating, and the estimated portion for all other commercial uses. The annual values in thousand barrels for commercial space heating and water heating are allocated to the months in proportion to U.S. heating degree days in Table 1.9. The annual values in thousand barrels for all other commercial uses are allocated to the months by dividing the annual values by the number of days in the year and then multiplying by the number of days in the month. Monthly total commercial sector propane consumption is the sum of the monthly values for commercial space heating and water heating and for all other commercial uses.

Annual transportation sector propane consumption: Through 2009, annual transportation sector propane consumption is assumed to equal the transportation portion of propane sales for internal combustion engines (these sales are allocated between the transportation and industrial sectors using data for special fuels used on highways provided by the U.S. Department of Transportation, Federal Highway Administration). Beginning in 2010, annual transportation sector propane consumption is from EIA, *Annual Energy Outlook*, Table 37, "Transportation Sector Energy Use by Fuel Type within a Mode."

Monthly transportation sector propane consumption: Beginning in 1973, the annual values in thousand barrels for transportation sector propane consumption are allocated to the months by dividing the annual values by the number of days in the year and then multiplying by the number of days in the month.

Annual and monthly industrial sector propane consumption: Industrial sector propane consumption is estimated as the difference between propane total product supplied from Table 3.5 and the sum of the estimated propane consumption by the residential, commercial, and transportation sectors.

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

1973–1982: EIA's "Sales of Liquefied Petroleum Gases and Ethane" reports, based primarily on data collected by Form EIA-174, "Sales of Liquefied Petroleum Gases."

1983: End-use consumption estimates for 1983 are based on 1982 end-use consumption because the collection of data under Form EIA-174 was discontinued after data year 1982.

1984–2007: American Petroleum Institute (API), "Sales of Natural Gas Liquids and Liquefied Refinery Gases," table on sales of natural gas liquids and liquefied refinery gases by end use. EIA adjusts the data to remove quantities of natural gasoline and to estimate withheld values.

2008 and 2009: Propane consumption is from API, "Sales of Natural Gas Liquids and Liquefied Refinery Gases," table on sales of propane by end use. EIA adjusts the data to estimate withheld values. Other LPG consumption is from EIA, PSA, annual reports, and is allocated to the industrial sector.

2010–2016: Propane consumption is from API, "Sales of Natural Gas Liquids and Liquefied Refinery Gases," table on sales of odorized propane by end use; and EIA, *Annual Energy Outlook*, Table 37, "Transportation Sector Energy Use by Fuel Type Within a Mode." EIA adjusts the data to estimate withheld values. Other LPG consumption is from EIA, PSA, annual reports, and is allocated to the industrial sector.

2017 forward: Propane consumption is from Propane Education & Research Council, "Retail Propane Sales Report," data on propane sales by sector; and EIA, *Annual Energy Outlook*, Table 37, "Transportation Sector Energy Use by Fuel Type Within a Mode." EIA adjusts the data to estimate withheld values. Other LPG consumption is from EIA, PSA, annual reports, and is allocated to the industrial sector.

### ***Hydrocarbon Gas Liquids (HGL)—Propylene***

Industrial sector propylene consumption is equal to propylene product supplied in Table 3.5.

### ***Hydrocarbon Gas Liquids (HGL)—Propane/Propylene Total***

Industrial sector total propane/propylene consumption is the sum of the industrial sector consumption values for propane and propylene.

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

The residential, commercial, and transportation sector total HGL consumption values are equal to the propane consumption values for those sectors. The industrial sector total HGL consumption value is equal to total HGL product supplied in Table 3.5 minus propane consumption in the residential, commercial, and transportation 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.

### ***Lubricants***

1973–2009: 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 through 2009.

2010 forward: The consumption of lubricants in the industrial sector is estimated by EIA based on Kline & Company data on finished lubricant demand for industrial (less marine and railroad) use. The consumption of lubricants in the transportation sector is estimated by EIA based on Kline & Company data on finished lubricant demand for consumer total, commercial total, marine, and railroad use. Estimates for lubricant consumption from 2010 forward are not compatible with data before 2010.

### ***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 product 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 product 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 product supplied minus the amount consumed by the commercial, transportation, and electric power sectors.

### *Other Petroleum Products*

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

## **Table 3.8a Sources**

### *Distillate Fuel Oil*

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

### *Hydrocarbon Gas Liquids (HGL)—Propane*

Residential and commercial sector consumption data in thousand barrels per day for propane are from Table 3.7a, and are converted to trillion Btu by multiplying by the propane heat content factor in Table A1. The residential and commercial sector total HGL consumption values are equal to the propane consumption values for those sectors.

### *Kerosene*

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

### *Motor Gasoline*

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

### *Petroleum Coke*

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

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

### *Residual Fuel Oil*

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

### *Total Petroleum*

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

## **Table 3.8b Sources**

### *Asphalt and Road Oil*

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



### ***Distillate Fuel Oil***

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

### ***Hydrocarbon Gas Liquids (HGL)—Propane***

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

### ***Hydrocarbon Gas Liquids (HGL)—Propylene***

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

### ***Hydrocarbon Gas Liquids (HGL)—Propane/Propylene Total***

Total industrial sector propane/propylene consumption is the sum of the data in trillion Btu for propane and propylene.

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

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

### ***Kerosene***

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

### ***Lubricants***

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

### ***Motor Gasoline***

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

### ***Other Petroleum Products***

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

### ***Petroleum Coke***

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

2004 forward: Industrial sector consumption data for petroleum coke are calculated by subtracting petroleum coke consumption data in trillion Btu for the commercial (Table 3.8a) and electric power (Table 3.8c) sectors from total petroleum coke consumption (Table 3.6).

### ***Residual Fuel Oil***

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

### ***Total Petroleum***

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

## Table 3.8c Sources

### *Aviation Gasoline*

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

### *Distillate Fuel Oil, Electric Power Sector*

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

### *Distillate Fuel Oil, Transportation Sector*

1949–2008: Transportation sector consumption data in thousand barrels per day for distillate fuel oil are from Table 3.7c, and are converted to trillion Btu by multiplying by the distillate fuel oil heat content factors in Table A3.

2009–2011: Consumption data for biodiesel are calculated using biodiesel data from U.S. Energy Information Administration (EIA), 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” (the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1). Consumption data for other renewable diesel fuel are set equal to refinery and blender net inputs data from EIA-810, “Monthly Refinery Report,” and EIA-815, “Monthly Bulk Terminal and Blender Report” (the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1). Transportation sector distillate fuel oil consumption data from Table 3.7c, minus consumption data for biodiesel and other renewable diesel fuel, are converted to Btu by multiplying by the distillate fuel heat content factors in Table A3. Total transportation sector distillate fuel oil consumption is the sum of the values for distillate fuel oil (excluding biodiesel and other renewable diesel fuel), biodiesel, and other renewable diesel fuel.

2012 forward: Consumption data for biodiesel are from Table 10.4. Consumption data for other renewable diesel fuel are set equal to refinery and blender net inputs data from EIA-810, “Monthly Refinery Report,” and EIA-815, “Monthly Bulk Terminal and Blender Report” (the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1). Transportation sector distillate fuel oil consumption data from Table 3.7c, minus consumption data for biodiesel and other renewable diesel fuel, 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 the values for distillate fuel oil (excluding biodiesel and other renewable diesel fuel), biodiesel, and other renewable diesel fuel.

### *Hydrocarbon Gas Liquids (HGL)—Propane*

Transportation sector consumption data in thousand barrels per day for propane are from Table 3.7c, and are converted to trillion Btu by multiplying by the propane heat content factor in Table A1. The transportation sector total HGL consumption values are equal to the transportation sector propane consumption values.

### *Jet Fuel*

Transportation sector consumption data in thousand barrels per day for kerosene-type jet fuel and, through 2004, naphtha-type jet fuel (see sources for Table 3.7c) are converted to trillion Btu by multiplying by the appropriate heat content factors in Table A1. Total transportation sector jet fuel consumption is the sum of the data in trillion Btu for kerosene-type and naphtha-type jet fuel. (Note: Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term “petroleum consumption” in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged aircraft.)

### *Lubricants*

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

### ***Motor Gasoline***

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

### ***Petroleum Coke***

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

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

### ***Residual Fuel Oil***

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

### ***Total Petroleum***

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

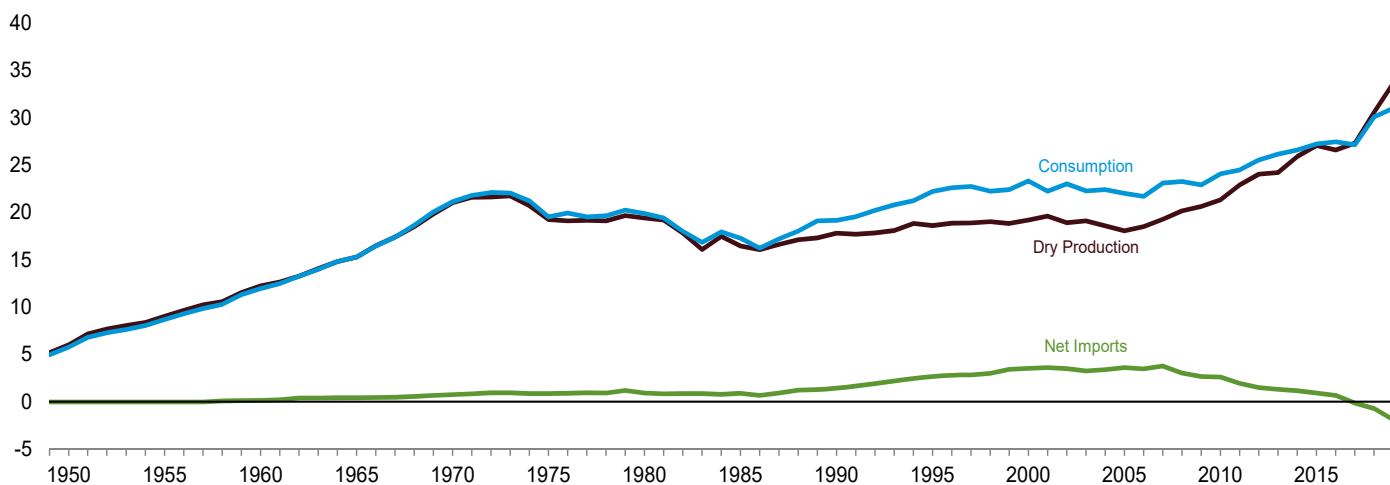
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## 4. Natural Gas

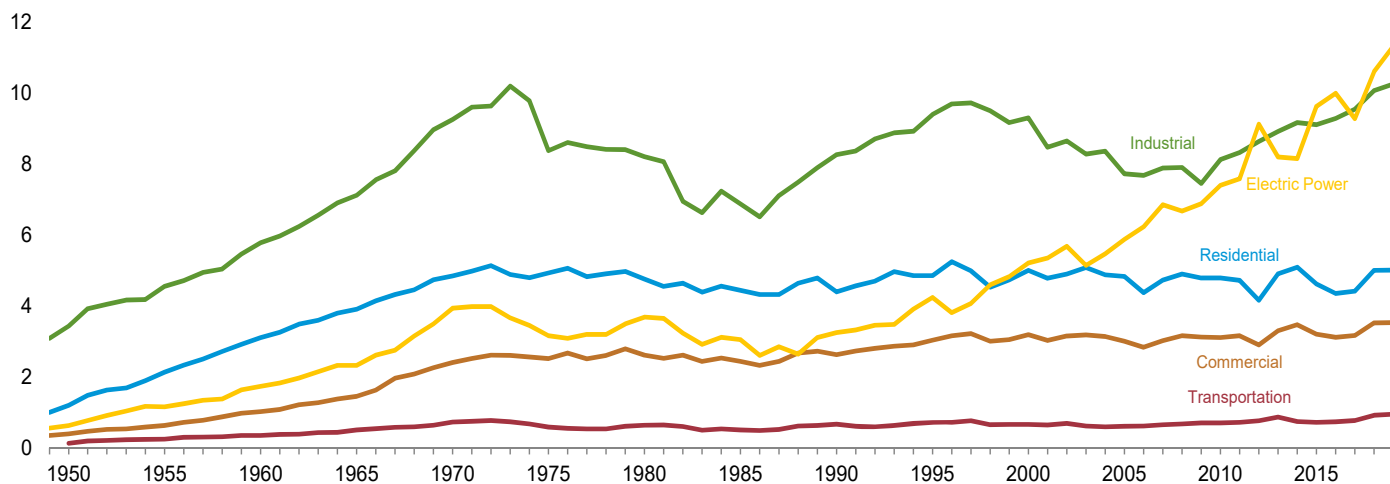
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**Figure 4.1 Natural Gas**  
(Trillion Cubic Feet)

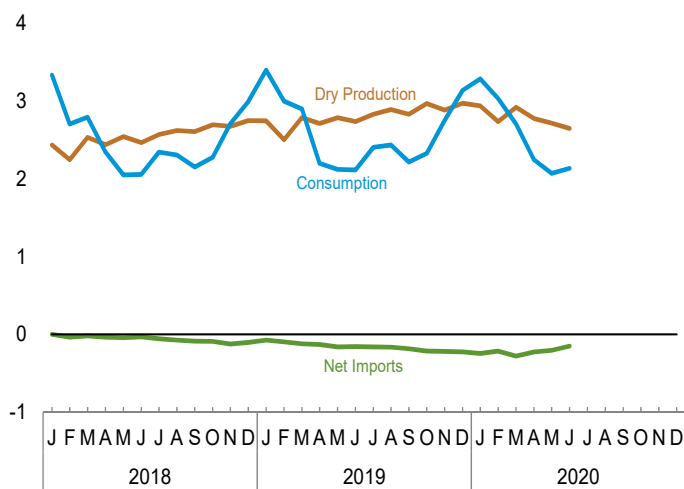
Overview, 1949–2019



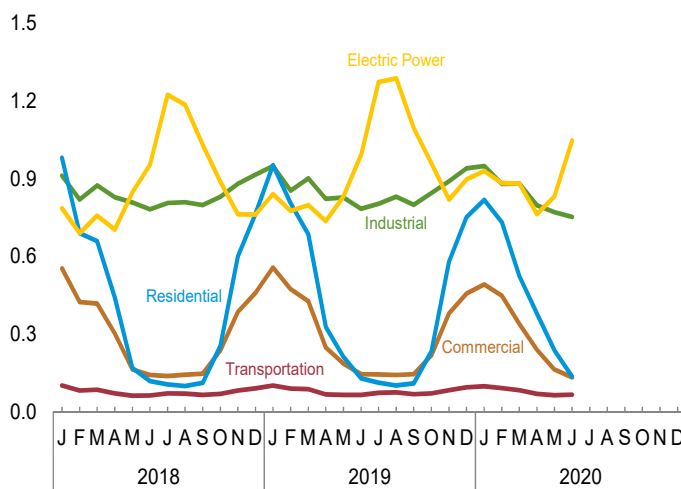
Consumption by Sector, 1949–2019



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	16,282	260	16,022	NA	0	26	-26	-54	-175	5,767
1955 Total .....	11,720	19,405	377	19,029	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	22,207
2000 Total .....	24,174	20,198	1,016	19,182	90	3,782	244	3,538	829	-306	23,333
2001 Total .....	24,501	20,570	954	19,616	86	3,977	373	3,604	-1,166	99	22,239
2002 Total .....	23,941	19,885	957	18,928	68	4,015	516	3,499	467	65	23,027
2003 Total .....	24,119	19,974	876	19,099	68	3,944	680	3,264	-197	44	22,277
2004 Total .....	23,970	19,517	927	18,591	60	4,259	854	3,404	-114	461	22,403
2005 Total .....	23,457	18,927	876	18,051	64	4,341	729	3,612	52	236	22,014
2006 Total .....	23,535	19,410	906	18,504	66	4,186	724	3,462	-436	103	21,699
2007 Total .....	24,664	20,196	930	19,266	63	4,608	822	3,785	192	-203	23,104
2008 Total .....	25,636	21,112	953	20,159	61	3,984	963	3,021	34	2	23,277
2009 Total .....	26,057	21,648	1,024	20,624	65	3,751	1,072	2,679	-355	-103	22,910
2010 Total .....	26,816	22,382	1,066	21,316	65	3,741	1,137	2,604	-13	115	24,087
2011 Total .....	28,479	24,036	1,134	22,902	60	3,469	1,506	1,963	-354	-94	24,477
2012 Total .....	29,542	25,283	1,250	24,033	61	3,138	1,619	1,519	-9	-66	25,538
2013 Total .....	29,523	25,562	1,357	24,206	55	2,883	1,572	1,311	546	38	26,155
2014 Total .....	31,405	27,498	1,608	25,890	60	2,695	1,514	1,181	-254	-283	26,593
2015 Total .....	32,915	28,772	1,707	27,065	59	2,718	1,784	935	-547	-268	27,244
2016 Total .....	32,592	28,400	1,808	26,592	57	3,006	2,335	671	340	-216	27,444
2017 Total .....	33,292	29,204	1,897	27,306	66	3,033	3,154	-121	254	-360	27,146
2018 January .....	2,986	2,612	178	2,435	6	300	300	(s)	913	-17	3,335
February .....	2,746	2,410	164	2,246	5	237	276	-38	477	16	2,706
March .....	3,085	2,721	185	2,535	6	271	291	-21	292	-20	2,793
April .....	2,979	2,617	178	2,439	6	242	279	-37	-37	-24	2,346
May .....	3,097	2,730	186	2,544	6	227	272	-45	-433	-20	2,051
June .....	2,961	2,645	180	2,465	6	228	262	-34	-358	-21	2,059
July .....	3,097	2,759	188	2,571	6	247	306	-59	-194	21	2,345
August .....	3,165	2,815	192	2,623	6	237	311	-74	-244	-3	2,308
September .....	3,142	2,797	190	2,607	6	214	302	-88	-344	-29	2,152
October .....	3,270	2,895	197	2,698	6	215	307	-92	-299	-34	2,279
November .....	3,235	2,870	195	2,675	6	212	338	-125	212	-57	2,710
December .....	3,365	2,952	201	2,751	6	257	363	-106	329	14	2,993
<b>Total .....</b>	<b>37,129</b>	<b>32,823</b>	<b>2,235</b>	<b>30,589</b>	<b>69</b>	<b>2,889</b>	<b>3,607</b>	<b>-719</b>	<b>312</b>	<b>-175</b>	<b>30,077</b>
2019 January .....	E 3,357	E 2,952	205	E 2,747	5	291	365	-74	709	13	3,400
February .....	E 3,051	E 2,694	191	E 2,504	6	233	330	-97	568	18	2,999
March .....	E 3,387	E 3,001	213	E 2,788	6	253	374	-121	245	-19	2,900
April .....	E 3,307	E 2,920	208	E 2,712	5	207	338	-132	-382	-3	2,201
May .....	E 3,392	E 3,004	216	E 2,788	4	208	369	-161	-472	-37	2,121
June .....	E 3,299	E 2,943	208	E 2,736	6	201	360	-159	-431	-36	2,115
July .....	E 3,384	E 3,040	210	E 2,830	5	230	393	-163	-254	-10	2,407
August .....	E 3,445	E 3,105	213	E 2,893	5	220	385	-165	-286	-10	2,437
September .....	E 3,401	E 3,047	215	E 2,832	4	208	R 395	-186	-419	-14	2,216
October .....	E 3,577	E 3,193	224	E 2,969	5	211	426	-215	-346	-85	2,327
November .....	E 3,499	E 3,103	215	E 2,887	5	224	441	-218	150	-72	2,753
December .....	E 3,606	E 3,195	223	E 2,972	6	256	481	-225	418	-33	3,138
<b>Total .....</b>	<b>E 40,704</b>	<b>E 36,197</b>	<b>2,540</b>	<b>E 33,657</b>	<b>61</b>	<b>2,742</b>	<b>4,656</b>	<b>-1,915</b>	<b>-500</b>	<b>-290</b>	<b>31,014</b>
2020 January .....	E 3,594	E 3,172	234	E 2,938	6	262	510	-248	571	22	3,289
February .....	E 3,345	E 2,950	212	E 2,738	6	238	454	-216	535	-29	3,035
March .....	E 3,565	E 3,157	235	E 2,922	6	217	497	-280	49	12	2,708
April .....	RE 3,375	RE 2,993	214	RE 2,779	6	193	R 421	-227	-306	R -4	R 2,248
May .....	RE 3,303	RE 2,927	212	RE 2,715	5	189	395	R -206	-448	R 5	2,070
June .....	E 3,237	E 2,876	226	E 2,650	5	185	338	-153	-358	-11	2,134
<b>6-Month Total .....</b>	<b>E 20,420</b>	<b>E 18,074</b>	<b>1,332</b>	<b>E 16,742</b>	<b>34</b>	<b>1,285</b>	<b>2,615</b>	<b>-1,330</b>	<b>43</b>	<b>-5</b>	<b>15,484</b>
2019 6-Month Total .....	E 19,793	E 17,514	1,240	E 16,274	32	1,393	2,135	-743	237	-65	15,736
2018 6-Month Total .....	17,855	15,735	1,071	14,664	33	1,506	1,680	-174	853	-86	15,290

<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 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 1980–2017, 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. (s)=Less than 0.5 billion cubic feet and greater than -0.5 billion cubic feet. 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: 1949–2018—U.S. Energy Information Administration (EIA), *Natural Gas Annual*, annual reports. 2019 forward—EIA, *Natural Gas Monthly*, August 2020, 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	(s)	0	34	112	26	3,138	971	14	620	14	1,619
2013 Total .....	0	2,786	0	1	3	7	70	17	2,883	911	0	661	0	1,572
2014 Total .....	0	2,635	0	1	0	0	43	16	2,695	770	13	729	3	1,514
2015 Total .....	0	2,626	0	1	0	0	71	20	2,718	701	8	1,054	20	1,784
2016 Total .....	0	2,918	0	1	0	0	84	3	3,006	771	11	1,405	148	2,335
2017 Total .....	0	2,955	0	1	6	0	70	0	3,033	917	53	1,671	513	3,154
2018 January .....	0	283	0	(s)	0	0	14	3	300	91	4	147	58	300
February .....	0	230	0	1	0	0	7	0	237	76	7	140	52	276
March .....	0	264	0	(s)	0	0	4	3	271	68	0	161	63	291
April .....	0	239	0	(s)	0	0	3	0	242	63	11	142	64	279
May .....	0	225	0	(s)	0	0	2	0	227	40	13	151	68	272
June .....	0	226	0	(s)	0	0	3	0	228	51	10	164	37	262
July .....	0	241	0	1	0	0	5	0	247	57	13	172	64	306
August .....	0	231	0	1	0	0	5	0	237	66	10	175	60	311
September .....	0	211	0	(s)	0	0	3	0	214	70	17	161	54	302
October .....	0	209	0	(s)	0	0	6	0	215	65	3	159	80	307
November .....	0	210	0	(s)	0	0	3	0	212	90	24	147	77	338
December .....	0	242	0	(s)	3	0	12	0	257	100	14	151	98	363
Total .....	0	2,811	0	3	3	0	66	6	2,889	836	126	1,871	775	3,607
2019 January .....	0	276	0	(s)	0	0	12	3	291	87	17	165	95	365
February .....	0	226	0	(s)	0	0	7	0	233	92	10	142	86	330
March .....	0	249	0	(s)	0	0	3	0	253	93	7	157	117	374
April .....	0	204	0	(s)	0	0	3	0	207	71	14	150	102	338
May .....	0	208	0	(s)	0	0	0	0	208	70	7	174	117	369
June .....	0	201	0	(s)	0	0	0	0	201	62	15	173	110	360
July .....	0	228	0	(s)	0	0	3	0	230	69	21	192	111	393
August .....	0	217	0	(s)	0	0	3	0	220	78	18	182	107	385
September .....	0	208	0	(s)	0	0	0	0	208	72	28	173	122	395
October .....	0	205	0	(s)	0	0	6	0	211	76	25	178	147	426
November .....	0	221	0	(s)	0	0	3	0	224	92	18	162	170	441
December .....	0	245	0	1	3	0	7	0	256	109	21	161	189	481
Total .....	0	2,687	0	2	3	0	47	3	2,742	972	201	2,010	1,474	4,656
2020 January .....	0	249	0	(s)	2	0	9	3	262	99	32	168	211	510
February .....	0	232	0	(s)	0	0	6	0	238	77	21	154	201	454
March .....	0	214	0	(s)	0	0	3	R (s)	217	86	22	174	215	497
April .....	0	190	0	(s)	0	0	3	0	193	72	18	R 139	192	R 421
May .....	0	187	0	(s)	0	0	3	0	189	68	14	145	169	395
June .....	0	180	0	(s)	3	0	2	0	185	67	22	163	87	338
6-Month Total .....	0	1,252	0	1	4	0	25	3	1,285	468	129	943	1,075	2,615
2019 6-Month Total .....	0	1,364	0	(s)	0	0	26	3	1,393	475	71	961	628	2,135
2018 6-Month Total .....	0	1,467	0	2	0	0	32	6	1,506	389	44	906	342	1,680

<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; United Kingdom in 2018; Yemen in 2010–2015; and Other (unassigned) in 2004–2015.  
<sup>e</sup> Argentina in 2016–2020; Bahamas in 2017–2020; Bangladesh 2019 and 2020; Barbados in 2016–2020; Belgium in 2019 and 2020; Brazil in 2010–2012, and 2014–2020; Chile in 2011, 2016–2020; China in 2011, 2016–2020; Colombia in 2018–2020, Dominican Republic in 2016–2020; Egypt in 2015–2018; France in 2018–2020; Greece in 2018–2020; Haiti 2019 and 2020; India in 2010–2012, 2016–2020; Israel 2018 and 2020; Italy in 2016–2020; Jamaica 2018–2020; Jordan in 2016–2020; Kuwait in 2016–2020; Lithuania in 2017 and 2019–2020; Malaysia in 2019; Malta in 2017–2020; Netherlands in 2017–2020; Pakistan in 2017–2020; Panama in 2018–2020; Poland in 2017–2020; Portugal in 2012, 2016–2020;

Russia in 2007; Singapore in 2018–2020; South Korea in 2009–2011, 2016–2020; Spain in 2010–2011, 2016–2020; Taiwan in 2015, 2017–2020; Thailand in 2017, 2019–2020; Turkey in 2015–2020; United Arab Emirates in 2016–2020; and United Kingdom in 2010, 2011, 2017–2020.  
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."  
• 1988–2018: EIA, *Natural Gas Annual*, annual reports. • 2019 forward: EIA, *Natural Gas Monthly*, August 2020, 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>f,g</sup>	Total
	Residential	Commercial <sup>a</sup>	Industrial					Transportation				
			Lease and Plant Fuel	Other Industrial			Total	Pipelines <sup>d</sup> and Distribution <sup>e</sup>	Vehicle Fuel	Total		
				CHP <sup>b</sup>	Non-CHP <sup>c</sup>	Total						
1950 Total .....	1,198	388	928	(h)	2,498	2,498	3,426	126	NA	126	629	5,767
1955 Total .....	2,124	629	1,131	(h)	3,411	3,411	4,542	245	NA	245	1,153	8,694
1960 Total .....	3,103	1,020	1,237	(h)	4,535	4,535	5,771	347	NA	347	1,725	11,967
1965 Total .....	3,903	1,444	1,156	(h)	5,955	5,955	7,112	501	NA	501	2,321	15,280
1970 Total .....	4,837	2,399	1,399	(h)	7,851	7,851	9,249	722	NA	722	3,932	21,139
1975 Total .....	4,924	2,508	1,396	(h)	6,968	6,968	8,365	583	NA	583	3,158	19,538
1980 Total .....	4,752	2,611	1,026	(h)	7,172	7,172	8,198	635	NA	635	3,682	19,877
1985 Total .....	4,433	2,432	966	(h)	5,901	5,901	6,867	504	NA	504	3,044	17,281
1990 Total .....	4,391	2,623	1,236	1,055	5,963	7,018	8,255	660	(s)	660	3,245	19,174
1995 Total .....	4,850	3,031	1,220	1,258	6,906	8,164	9,384	700	5	705	4,237	22,207
2000 Total .....	4,996	3,182	1,151	1,386	6,757	8,142	9,293	642	13	655	5,206	23,333
2001 Total .....	4,771	3,023	1,119	1,310	6,035	7,344	8,463	625	15	640	5,342	22,239
2002 Total .....	4,889	3,144	1,113	1,240	6,287	7,527	8,640	667	15	682	5,672	23,027
2003 Total .....	5,079	3,179	1,122	1,144	6,007	7,150	8,273	591	18	610	5,135	22,277
2004 Total .....	4,869	3,129	1,098	1,191	6,066	7,256	8,354	566	21	587	5,464	22,403
2005 Total .....	4,827	2,999	1,112	1,084	5,518	6,601	7,713	584	23	607	5,869	22,014
2006 Total .....	4,368	2,832	1,142	1,115	5,412	6,527	7,669	584	24	608	6,222	21,699
2007 Total .....	4,722	3,013	1,226	1,050	5,604	6,655	7,881	621	25	646	6,841	23,104
2008 Total .....	4,892	3,153	1,220	955	5,715	6,670	7,890	648	26	674	6,668	23,277
2009 Total .....	4,779	3,119	1,275	990	5,178	6,167	7,443	670	27	697	6,873	22,910
2010 Total .....	4,782	3,103	1,286	1,029	5,797	6,826	8,112	674	29	703	7,387	24,087
2011 Total .....	4,714	3,155	1,323	1,063	5,931	6,994	8,317	688	30	718	7,574	24,477
2012 Total .....	4,150	2,895	1,396	1,149	6,077	7,226	8,622	731	30	761	9,111	25,538
2013 Total .....	4,897	3,295	1,483	1,170	6,255	7,425	8,909	833	30	863	8,191	26,155
2014 Total .....	5,087	3,466	1,512	1,145	6,501	7,646	9,158	700	35	735	8,146	26,593
2015 Total .....	4,613	3,202	1,576	1,222	6,300	7,522	9,098	678	39	718	9,613	27,244
2016 Total .....	4,347	3,110	1,545	1,209	6,519	7,729	9,274	687	42	729	9,985	27,444
2017 Total .....	4,412	3,164	1,584	1,257	6,693	7,949	9,533	722	48	770	9,266	27,146
2018 January .....	981	554	134	115	663	778	912	97	4	102	786	3,335
February .....	690	424	124	101	595	696	819	78	4	82	690	2,706
March .....	659	418	140	105	629	734	874	81	4	85	757	2,793
April .....	441	302	134	102	592	694	828	67	4	71	704	2,346
May .....	169	164	140	105	563	668	808	58	4	62	848	2,051
June .....	119	142	136	107	539	646	782	58	4	63	953	2,059
July .....	106	138	142	116	549	665	806	67	4	71	1,224	2,345
August .....	100	143	144	116	549	665	809	66	4	70	1,186	2,308
September .....	112	147	144	110	544	654	798	61	4	65	1,030	2,152
October .....	255	237	149	110	572	681	830	65	4	69	888	2,279
November .....	599	386	147	113	620	732	880	78	4	82	763	2,710
December .....	765	459	151	115	649	764	916	86	4	91	762	2,993
Total .....	4,996	3,515	1,684	1,314	7,063	8,377	10,062	863	50	913	10,590	30,077
2019 January .....	952	557	E 151	121	677	797	949	E 98	E 4	E 102	841	3,400
February .....	805	474	E 138	106	610	716	854	E 86	E 4	E 90	776	2,999
March .....	686	427	E 154	111	636	747	901	E 83	E 4	E 87	798	2,900
April .....	328	249	E 150	106	566	672	822	E 63	E 4	E 67	736	2,201
May .....	212	186	E 154	109	564	673	827	E 61	E 4	E 65	831	2,121
June .....	129	145	E 151	108	525	633	784	E 61	E 4	E 65	993	2,115
July .....	113	144	E 156	114	533	647	803	E 69	E 4	E 73	1,273	2,407
August .....	102	142	E 159	115	556	671	830	E 70	E 5	E 75	1,288	2,437
September .....	110	145	E 156	110	533	642	799	E 64	E 4	E 68	1,095	2,216
October .....	233	218	E 164	111	571	682	845	E 67	E 5	E 71	960	2,327
November .....	580	380	E 159	116	615	731	890	E 79	E 4	E 83	819	2,753
December .....	751	456	E 164	122	654	776	940	E 90	E 5	E 95	897	3,138
Total .....	5,000	3,521	E 1,857	1,349	7,039	8,388	10,245	E 890	E 51	E 941	11,307	31,014
2020 January .....	818	492	E 163	124	663	787	949	E 94	E 5	E 99	930	3,289
February .....	732	448	E 151	112	616	729	880	E 87	E 5	E 92	883	3,035
March .....	524	340	E 162	114	605	719	881	E 78	E 5	E 83	881	2,708
April .....	378	240	RE 154	106	537	643	797	E 64	E 5	E 69	764	R 2,248
May .....	238	164	E 150	107	514	621	771	E 59	E 5	E 64	832	2,070
June .....	136	133	E 148	110	495	604	752	E 61	E 5	E 66	1,047	2,134
6-Month Total .....	2,826	1,818	E 927	673	3,430	4,103	5,030	E 444	E 29	E 474	5,336	15,484
2019 6-Month Total .....	3,111	2,036	E 899	662	3,576	4,239	5,137	E 451	E 24	E 476	4,975	15,736
2018 6-Month Total .....	3,059	2,005	807	635	3,581	4,216	5,023	440	25	465	4,738	15,290

<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: 1949–2018**—U.S. Energy Information Administration (EIA), *Natural Gas Annual (NGA)*, annual reports and unpublished revisions. **2019 forward**—EIA, *Natural Gas Monthly (NGM)*, August 2020, 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). **1999–2018**—EIA, *NGA*, annual reports. **2019 forward**—EIA, *NGM*, August 2020, 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	-499
1995 Total .....	4,349	2,153	6,503	-453	-17.4	2,974	2,566	408
2000 Total .....	4,352	1,719	6,071	-806	-31.9	3,498	2,684	814
2001 Total .....	4,301	2,904	7,204	1,185	68.9	2,309	3,464	-1,156
2002 Total .....	4,340	2,375	6,715	-528	-18.2	3,138	2,670	468
2003 Total .....	4,303	2,563	6,866	187	7.9	3,099	3,292	-193
2004 Total .....	4,201	2,696	6,897	133	5.2	3,037	3,150	-113
2005 Total .....	4,200	2,635	6,835	-61	-2.3	3,057	3,002	55
2006 Total .....	4,211	3,070	7,281	435	16.5	2,493	2,924	-431
2007 Total .....	4,234	2,879	7,113	-191	-6.2	3,325	3,133	192
2008 Total .....	4,232	2,840	7,073	-39	-1.4	3,374	3,340	34
2009 Total .....	4,277	3,130	7,407	290	10.2	2,966	3,315	-349
2010 Total .....	4,301	3,111	7,412	-19	-6	3,274	3,291	-17
2011 Total .....	4,302	3,462	7,764	351	11.3	3,074	3,422	-348
2012 Total .....	4,372	3,413	7,785	-49	-1.4	2,818	2,825	-7
2013 Total .....	4,365	2,890	7,255	-523	-15.3	3,702	3,156	546
2014 Total .....	4,365	3,141	7,506	251	8.7	3,586	3,839	-253
2015 Total .....	4,372	3,667	8,038	525	16.7	3,100	3,638	-539
2016 Total .....	4,380	3,297	7,677	-370	-10.1	3,325	2,977	348
2017 Total .....	4,360	3,033	7,392	-264	-8.0	3,590	3,337	254
2018 January .....	4,357	2,141	6,498	-482	-18.4	1,037	141	896
February .....	4,357	1,673	6,030	-665	-28.4	599	133	467
March .....	4,353	1,390	5,743	-672	-32.6	449	164	285
April .....	4,350	1,427	5,777	-864	-37.7	224	256	-32
May .....	4,352	1,847	6,199	-779	-29.7	66	489	-423
June .....	4,354	2,195	6,549	-712	-24.5	88	436	-349
July .....	4,354	2,381	6,736	-673	-22.0	175	362	-186
August .....	4,355	2,617	6,972	-633	-19.5	172	407	-235
September .....	4,356	2,950	7,306	-617	-17.3	130	464	-334
October .....	4,357	3,236	7,593	-580	-15.2	131	422	-291
November .....	4,356	3,030	7,386	-679	-18.3	418	213	205
December .....	4,361	2,708	7,069	-324	-10.7	511	191	320
Total .....	4,361	2,708	7,069	-324	-10.7	3,999	3,676	324
2019 January .....	4,366	1,994	6,360	-147	-6.8	804	95	709
February .....	4,366	1,426	5,792	-246	-14.7	672	104	568
March .....	4,361	1,185	5,545	-205	-14.8	435	190	245
April .....	4,367	1,559	5,927	133	9.3	104	486	-382
May .....	4,372	2,031	6,403	184	9.9	85	557	-472
June .....	4,375	2,461	6,835	266	12.1	92	523	-431
July .....	4,374	2,714	7,089	333	14.0	162	416	-254
August .....	4,377	2,998	7,374	381	14.6	168	453	-286
September .....	4,378	3,415	7,793	465	15.7	109	529	-419
October .....	4,379	3,762	8,141	526	16.2	116	461	-346
November .....	4,380	3,610	7,990	580	19.1	351	201	150
December .....	4,380	3,189	7,568	480	17.7	556	138	418
Total .....	4,380	3,189	7,568	480	17.7	3,653	4,153	-500
2020 January .....	4,380	2,616	6,997	622	31.2	665	94	571
February .....	4,379	2,081	6,460	655	45.9	634	99	535
March .....	4,379	2,030	6,409	845	71.3	285	236	49
April .....	4,384	2,333	6,717	773	49.6	131	437	-306
May .....	4,387	2,778	7,165	747	36.8	74	522	-448
June .....	4,389	3,133	7,523	673	27.3	85	443	-358
6-Month Total .....	--	--	--	--	--	1,874	1,831	43
2019 6-Month Total .....	--	--	--	--	--	2,192	1,955	237
2018 6-Month Total .....	--	--	--	--	--	2,463	1,618	845

<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 1980–2018, 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.

-- =Not applicable. NA=Not available.

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

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

beginning in 1973.

Sources: • **Storage Activity: 1949–1975**—U.S. Energy Information Administration (EIA), *Natural Gas Annual 1994, Volume 2*, Table 9. **1976–1979**—EIA, *Natural Gas Production and Consumption 1979*, Table 1. **1980–1995**—EIA, *Historical Natural Gas Annual 1930 Through 2000*, Table 11. **1996–2014**—EIA, *Natural Gas Monthly (NGM)*, monthly issues. **2015 forward**—EIA, NGM, August 2020, 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." **1996–2018**—EIA, NGA, annual reports. **2019 forward**—EIA, NGM, August 2020, Table 8.

**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:

Total underground storage capacity, including active and inactive fields (billion cubic feet)										
Decade	Year-0	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9
1970s						6,280	6,544	6,678	6,890	6,929
1980s	7,434	7,805	7,915	7,985	8,043	8,087	8,145	8,124	8,124	8,120
1990s	7,794	7,993	7,932	7,989	8,043	7,953	7,980	8,332	8,179	8,229
2000s	8,241	8,182	8,207	8,206	8,255	8,268	8,330	8,402	8,499	8,656
2010s	8,764	8,849	8,991	9,173	9,233	9,231	9,239	9,261	9,241	<sup>P</sup> 9,230

P = Preliminary

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 1980–2017 include both underground and liquefied natural gas (LNG) storage. Annual data on LNG additions and withdrawals are from Form EIA-176. Monthly data are estimated by computing the ratio of each month's underground storage additions and withdrawals to annual underground storage additions and withdrawals and applying the ratio to the annual LNG data.

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

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

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

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

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

For 1996–2000, monthly data for several natural gas series shown in EIA's Natural Gas Navigator (see [http://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_nus\\_m.htm](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, and 2000), Dry Gas Production (1996, 1997), Supplemental Gaseous Fuels (1997–2000), Balancing Item (1997–2000), and Total Consumption (1997–2000). The Table 4.3 data series (and years) that were adjusted are: Lease and Plant Fuel (1997–2000), Total Industrial (1997–2000), Pipelines and Distribution (2000), Total Transportation (2000), and Total Consumption (1997–2000).

**Note 9. Natural Gas Imports and Exports.** The United States imports natural gas via pipeline from Canada and Mexico; and imports liquefied natural gas (LNG) via tanker from Algeria, Australia, Brunei, Egypt, Equatorial Guinea, Indonesia, Malaysia, Nigeria, Norway, Oman, Peru, Qatar, Trinidad and Tobago, the United Arab Emirates, and Yemen. In addition, small amounts of LNG arrived from Canada in 1973 (667 million cubic feet), 1977 (572 million cubic feet), 1981 (6 million cubic feet), 2013 (555 million cubic feet), 2014 (132 million cubic feet), 2015 (437 million cubic feet), 2016 (924 million cubic feet), 2017 (1,569 million cubic feet), 2018 (1,885 million cubic feet), 2019 (226 million cubic feet), and 2020 (4 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, Bahamas, Bangladesh, Barbados, Belgium, Brazil, Chile, China, Columbia, Dominican Republic, Egypt, France, Greece, Haiti, India, Israel, Italy, Jamaica, Japan, Jordan, Kuwait, Lithuania, Malaysia, Malta, Netherlands, Pakistan, Panama, Poland, Portugal, Russia, Singapore, South Korea, Spain, Taiwan, Thailand, Turkey, United Arab Emirates, and United Kingdom. Also, small amounts of LNG have gone to Mexico since 1998 and to Canada in 2007 and 2012 forward. Small amounts of CNG have been exported to Canada since 2013.

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

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

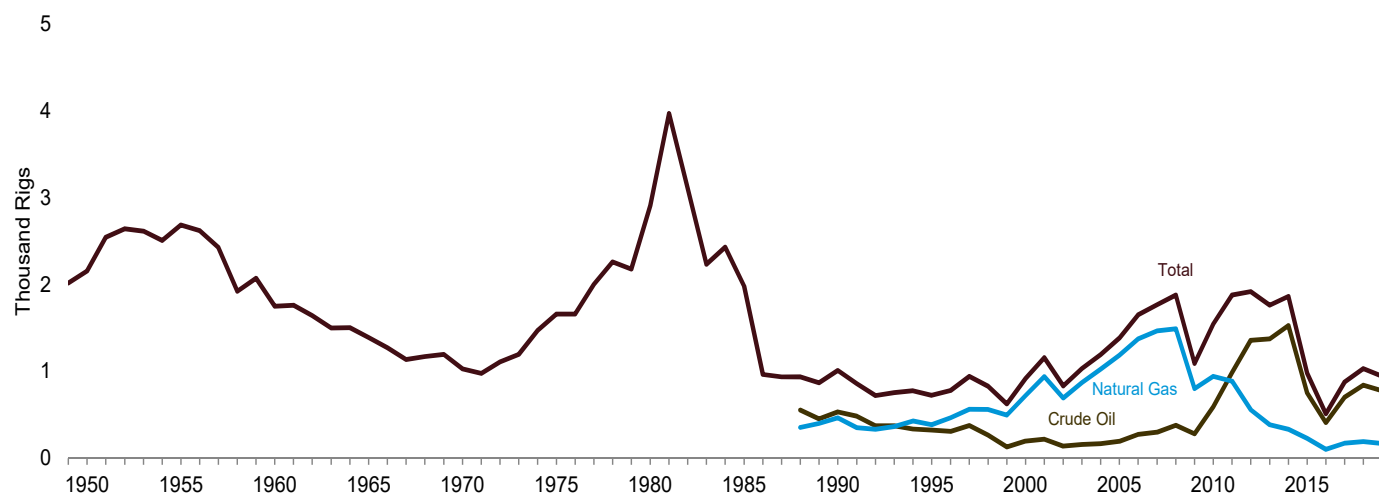
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## **5. Crude Oil and Natural Gas Resource Development**

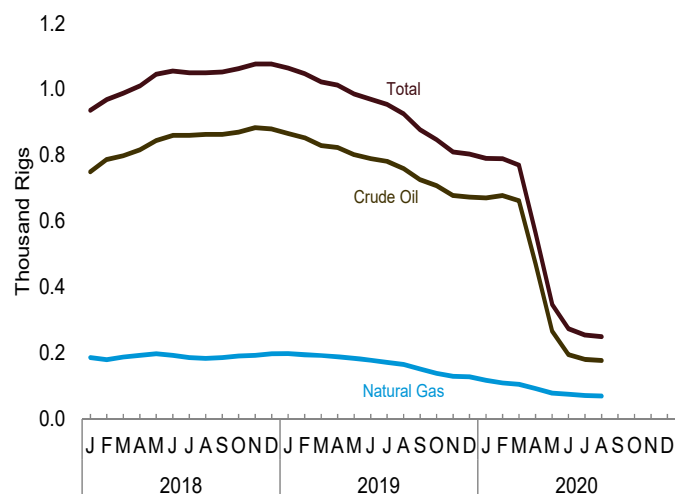
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**Figure 5.1 Crude Oil and Natural Gas Resource Development Indicators**

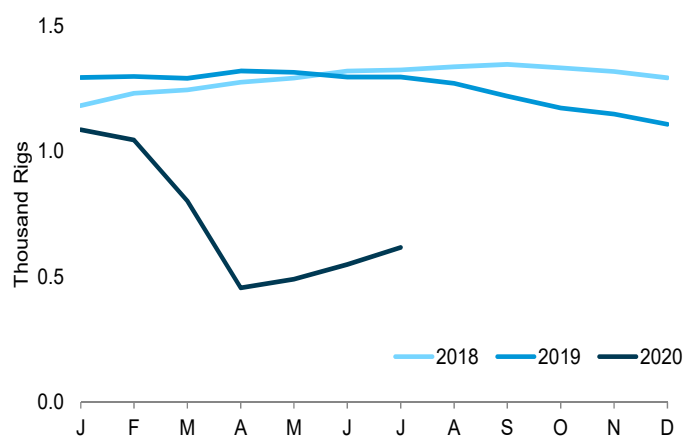
Rotary Rigs in Operation by Type, 1949–2019



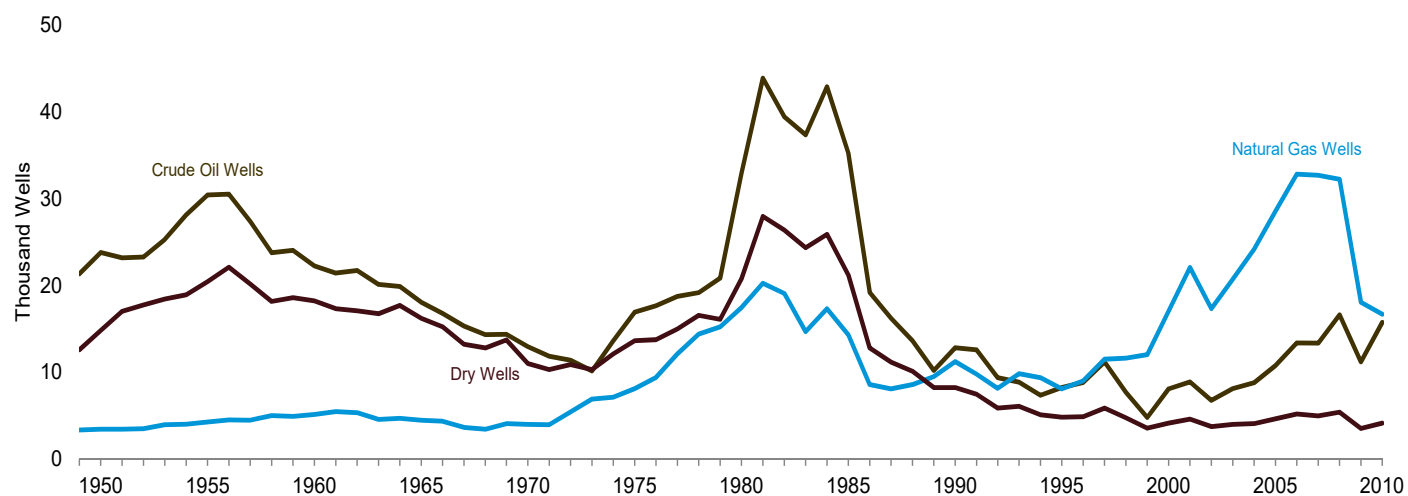
Rotary Rigs in Operation by Type, Monthly



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 Average .....	1,804	57	1,527	333	1,862	2,024
2015 Average .....	943	35	750	226	978	1,481
2016 Average .....	486	23	408	100	509	1,061
2017 Average .....	856	20	703	172	876	1,187
2018 January .....	919	18	750	187	937	1,183
February .....	952	17	788	180	969	1,232
March .....	976	13	799	188	989	1,246
April .....	995	16	817	193	1,011	1,276
May .....	1,026	20	845	198	1,046	1,293
June .....	1,037	19	861	193	1,056	1,321
July .....	1,032	18	861	187	1,050	1,326
August .....	1,031	19	864	184	1,050	1,338
September .....	1,033	20	864	187	1,053	1,347
October .....	1,041	21	870	192	1,063	1,334
November .....	1,055	22	884	193	1,077	1,319
December .....	1,054	24	880	198	1,077	1,294
Average .....	1,013	19	841	190	1,032	1,292
2019 January .....	1,044	21	866	199	1,065	1,295
February .....	1,029	20	853	195	1,048	1,299
March .....	1,001	22	830	193	1,023	1,292
April .....	990	22	824	189	1,013	1,321
May .....	965	21	802	184	986	1,316
June .....	945	24	790	179	970	1,297
July .....	930	25	782	172	955	1,297
August .....	900	26	760	166	926	1,272
September .....	852	26	726	152	878	1,221
October .....	825	23	708	139	848	1,173
November .....	788	22	678	130	810	1,149
December .....	781	23	673	128	804	1,108
Average .....	920	23	774	169	943	1,253
2020 January .....	770	21	671	118	791	1,086
February .....	768	23	678	110	790	1,046
March .....	752	20	663	106	771	802
April .....	548	18	471	93	565	456
May .....	335	13	267	79	348	490
June .....	262	12	196	76	274	549
July .....	243	12	181	72	255	617
August .....	237	13	178	70	250	NA
8-Month Average .....	486	16	410	90	502	NA
2019 8-Month Average .....	974	23	812	184	996	1,299
2018 8-Month Average .....	998	17	825	189	1,015	1,277

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

<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:** Assoc. of Energy Service Companies, Friendswood, TX. See <https://www.aesc.net/aesc-rig-counts.html>.

**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

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**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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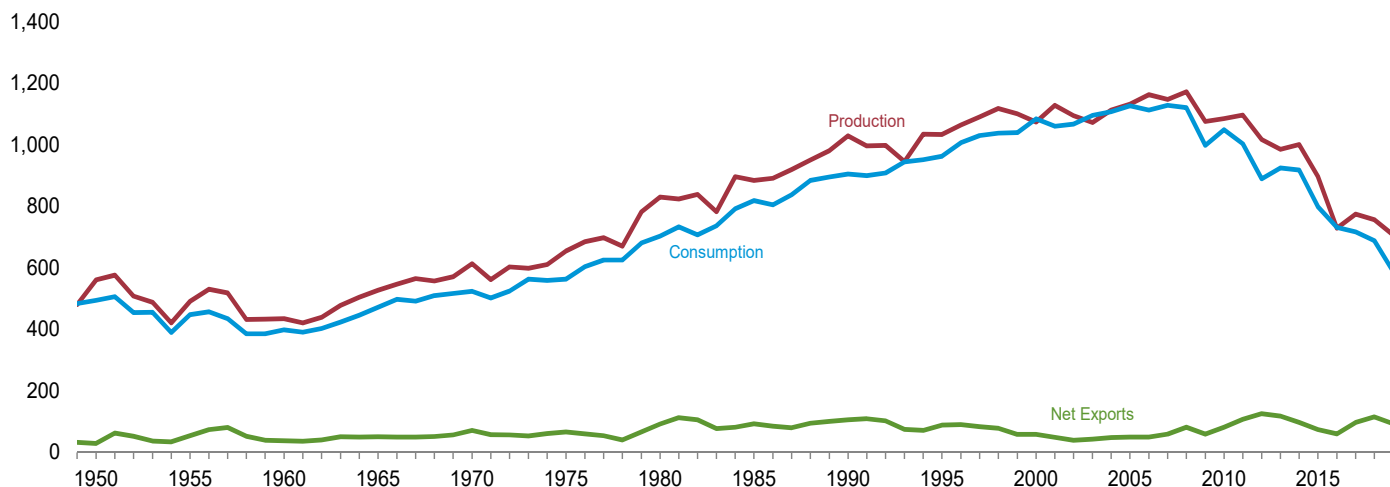
## 6. Coal

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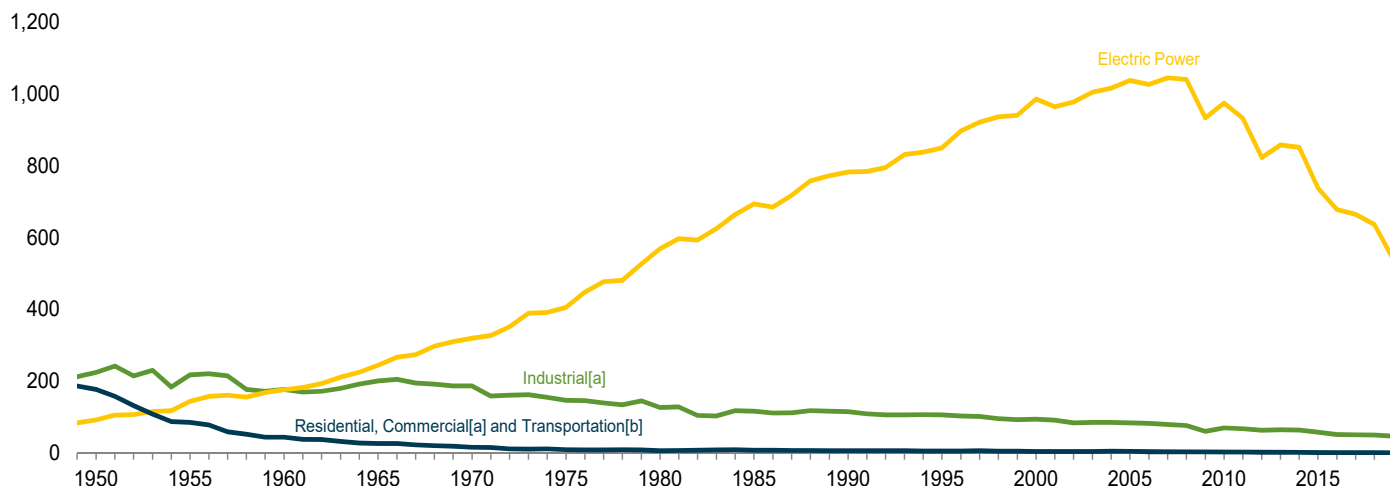
**Figure 6.1 Coal**

(Million Short Tons)

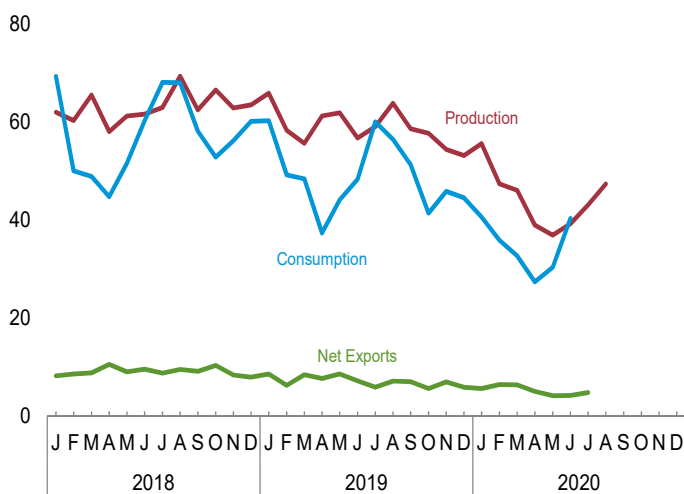
Overview, 1949–2019



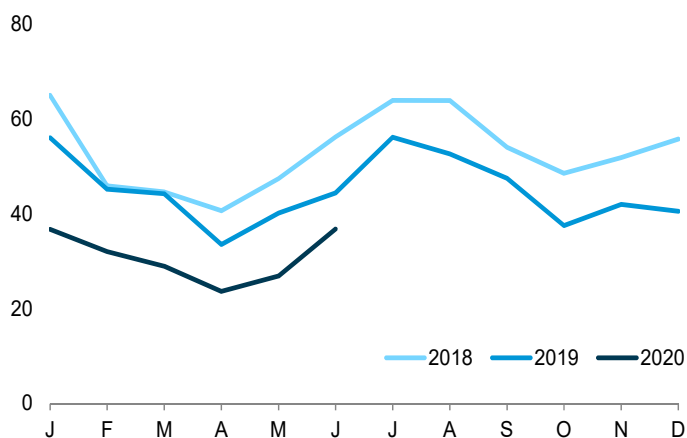
Consumption by Sector, 1949–2019



Overview, Monthly



Electric Power Sector Consumption, Monthly



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

[b] For 1978 forward, small amounts of transportation sector use are

included in "Industrial."

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

Sources: Tables 6.1 and 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>			
1950 Total .....	560,388	NA	365	29,360	-28,995	27,829	9,462	494,102
1955 Total .....	490,838	NA	337	54,429	-54,092	-3,974	-6,292	447,012
1960 Total .....	434,329	NA	262	37,981	-37,719	-3,194	1,722	398,081
1965 Total .....	526,954	NA	184	51,032	-50,848	1,897	2,244	471,965
1970 Total .....	612,661	NA	36	71,733	-71,697	11,100	6,633	523,231
1975 Total .....	654,641	NA	940	66,309	-65,369	32,154	-5,522	562,640
1980 Total .....	829,700	NA	1,194	91,742	-90,548	25,595	10,827	702,730
1985 Total .....	883,638	NA	1,952	92,680	-90,727	-27,934	2,796	818,049
1990 Total .....	1,029,076	3,339	2,699	105,804	-103,104	26,542	-1,730	904,498
1995 Total .....	1,032,974	8,561	9,473	88,547	-79,074	-275	632	962,104
2000 Total .....	1,073,612	9,089	12,513	58,489	-45,976	-48,309	938	1,084,095
2001 Total .....	1,127,689	10,085	19,787	48,666	-28,879	41,630	7,120	1,060,146
2002 Total .....	1,094,283	9,052	16,875	39,601	-22,726	10,215	4,040	1,066,355
2003 Total .....	1,071,753	10,016	25,044	43,014	-17,970	-26,659	-4,403	1,094,861
2004 Total .....	1,112,099	11,299	27,280	47,998	-20,718	-11,462	6,887	1,107,255
2005 Total .....	1,131,498	13,352	30,460	49,942	-19,482	-9,702	9,092	1,125,978
2006 Total .....	1,162,750	14,409	36,246	49,647	-13,401	42,642	8,824	1,112,292
2007 Total .....	1,146,635	14,076	36,347	59,163	-22,816	5,812	4,085	1,127,998
2008 Total .....	1,171,809	14,146	34,208	81,519	-47,311	12,354	5,740	1,120,548
2009 Total .....	1,074,923	13,666	22,639	59,097	-36,458	39,668	14,985	997,478
2010 Total .....	1,084,368	13,651	19,353	81,716	-62,363	-13,039	182	1,048,514
2011 Total .....	1,095,628	13,209	13,088	107,259	-94,171	211	11,506	1,002,948
2012 Total .....	1,016,458	11,196	9,159	125,746	-116,586	6,902	14,980	889,185
2013 Total .....	984,842	11,279	8,906	117,659	-108,753	-38,525	1,451	924,442
2014 Total .....	1,000,049	12,090	11,350	97,257	-85,907	-2,601	11,101	917,731
2015 Total .....	896,941	9,969	11,318	73,958	-62,640	40,704	5,452	798,115
2016 Total .....	728,364	10,138	9,850	60,271	-50,421	-45,441	2,452	731,071
2017 Total .....	774,609	9,951	7,777	96,953	-89,176	-26,033	4,562	716,856
2018 January .....	61,971	1,090	500	8,772	-8,273	-13,881	-583	69,254
February .....	60,269	909	349	9,022	-8,673	-2,738	5,218	50,025
March .....	65,504	997	518	9,426	-8,908	5,081	3,641	48,870
April .....	58,046	704	494	11,092	-10,598	1,275	2,084	44,793
May .....	61,211	600	544	9,645	-9,102	-1,134	2,270	51,574
June .....	61,572	818	509	10,138	-9,629	-6,753	-726	60,240
July .....	62,967	928	692	9,532	-8,840	-12,556	-471	68,083
August .....	69,325	949	484	10,052	-9,569	-5,714	-1,556	67,976
September .....	62,438	818	263	9,483	-9,220	-2,520	-1,603	58,159
October .....	66,532	723	304	10,681	-10,377	3,885	183	52,811
November .....	62,857	923	400	8,872	-8,472	-166	-696	56,170
December .....	63,474	971	898	8,916	-8,018	-1,937	-1,785	60,149
Total .....	756,167	10,431	5,954	115,632	-109,678	-37,160	5,975	688,105
2019 January .....	R 65,836	990	625	9,285	-8,661	-3,800	R 1,746	60,219
February .....	R 58,315	836	358	6,707	-6,349	1,032	R 2,549	49,220
March .....	R 55,667	897	706	9,217	-8,512	-1,711	R 1,345	48,417
April .....	R 61,213	693	537	8,285	-7,749	10,076	R 6,710	37,372
May .....	R 61,862	763	408	9,085	-8,678	8,028	R 1,790	44,129
June .....	R 56,706	808	660	7,945	-7,285	1,649	R 226	48,353
July .....	R 59,069	794	511	6,489	-5,978	-6,552	R 439	59,998
August .....	R 63,795	774	519	7,706	-7,187	277	R 637	56,468
September .....	R 58,597	627	651	7,723	-7,072	1,092	R -267	51,326
October .....	R 57,674	587	742	6,426	-5,684	9,224	R 1,948	41,405
November .....	R 54,393	711	466	7,491	-7,025	4,334	R -2,139	45,884
December .....	R 53,184	783	515	6,491	-5,976	5,326	R -1,887	44,553
Total .....	R 706,309	9,264	6,697	92,852	-86,155	28,976	R 13,098	587,344
2020 January .....	55,612	674	535	6,234	-5,699	5,818	4,146	40,624
February .....	47,379	647	343	6,829	-6,486	5,426	221	35,892
March .....	46,061	524	461	6,914	-6,453	5,769	1,634	32,729
April .....	R 39,000	F 763	365	5,480	-5,115	7,173	R 45	27,429
May .....	R 36,934	F 763	498	4,719	-4,222	R 2,809	R 256	30,410
June .....	R 39,259	RF 763	284	4,579	-4,295	R -5,022	R 427	R 40,321
July .....	43,087	NA	R 473	R 5,359	R -4,886	NA	NA	NA
August .....	47,394	NA	NA	NA	NA	NA	NA	NA
8-Month Total .....	354,725	NA	NA	NA	NA	NA	NA	NA
2019 8-Month Total .....	482,461	6,555	4,323	64,720	-60,398	9,000	15,443	404,176
2018 8-Month Total .....	500,866	6,996	4,089	77,680	-73,591	-36,421	9,876	460,815

<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
	Resi- dential	Commercial			Coke Plants	Industrial			Trans- portation			
		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	523,231
1975 Total .....	2,823	(g)	6,587	6,587	83,598	(h)	63,646	63,646	147,244	24	405,962	562,640
1980 Total .....	1,355	(g)	5,097	5,097	66,657	(h)	60,347	60,347	127,004	(h)	569,274	702,730
1985 Total .....	1,711	(g)	6,068	6,068	41,056	(h)	75,372	75,372	116,429	(h)	693,841	818,049
1990 Total .....	1,345	1,191	4,189	5,379	38,877	27,781	48,549	76,330	115,207	(h)	<sup>f</sup> 782,567	904,498
1995 Total .....	755	1,419	3,633	5,052	33,011	29,363	43,693	73,055	106,067	(h)	850,230	962,104
2000 Total .....	454	1,547	2,126	3,673	28,939	28,031	37,177	65,208	94,147	(h)	985,821	1,084,095
2001 Total .....	481	1,448	2,441	3,888	26,075	25,755	39,514	65,268	91,344	(h)	964,433	1,060,146
2002 Total .....	533	1,405	2,506	3,912	23,656	26,232	34,515	60,747	84,403	(h)	977,507	1,066,355
2003 Total .....	551	1,816	1,869	3,685	24,248	24,846	36,415	61,261	85,509	(h)	1,005,116	1,094,861
2004 Total .....	512	1,917	2,693	4,610	23,670	26,613	35,582	62,195	85,865	(h)	1,016,268	1,107,255
2005 Total .....	378	1,922	2,420	4,342	23,434	25,875	34,465	60,340	83,774	(h)	1,037,485	1,125,978
2006 Total .....	290	1,886	1,050	2,936	22,957	25,262	34,210	59,472	82,429	(h)	1,026,636	1,112,292
2007 Total .....	353	1,927	1,247	3,173	22,715	22,537	34,078	56,615	79,331	(h)	1,045,141	1,127,998
2008 Total .....	(i)	2,021	1,485	3,506	22,070	21,902	32,491	54,393	76,463	(h)	1,040,580	1,120,548
2009 Total .....	(i)	1,798	1,412	3,210	15,326	19,766	25,549	45,314	60,641	(h)	933,627	997,478
2010 Total .....	(i)	1,720	1,361	3,081	21,092	24,638	24,650	49,289	70,381	(h)	975,052	1,048,514
2011 Total .....	(i)	1,668	1,125	2,793	21,434	22,319	23,919	46,238	67,671	(h)	932,484	1,002,948
2012 Total .....	(i)	1,450	595	2,045	20,751	20,065	22,773	42,838	63,589	(h)	823,551	889,185
2013 Total .....	(i)	1,356	595	1,951	21,474	19,761	23,294	43,055	64,529	(h)	857,962	924,442
2014 Total .....	(i)	1,063	824	1,887	21,297	19,076	23,870	42,946	64,243	(h)	851,602	917,731
2015 Total .....	(i)	798	706	1,503	19,708	16,984	21,475	38,459	58,167	(h)	738,444	798,115
2016 Total .....	(i)	683	500	1,183	16,485	14,720	20,129	34,849	51,333	(h)	678,554	731,071
2017 Total .....	(i)	610	451	1,061	17,538	12,975	20,289	33,264	50,801	(h)	664,993	716,856
2018 January .....	(i)	76	64	140	1,458	1,242	1,453	2,695	4,153	(h)	64,960	69,254
February .....	(i)	59	50	110	1,288	1,122	1,608	2,730	4,018	(h)	45,897	50,025
March .....	(i)	57	48	105	1,482	1,109	1,612	2,721	4,203	(h)	44,562	48,870
April .....	(i)	47	28	75	1,549	960	1,607	2,567	4,116	(h)	40,603	44,793
May .....	(i)	39	23	62	1,596	979	1,581	2,561	4,156	(h)	47,356	51,574
June .....	(i)	36	21	57	1,465	969	1,595	2,564	4,029	(h)	56,154	60,240
July .....	(i)	40	15	55	1,600	962	1,572	2,534	4,135	(h)	63,894	68,083
August .....	(i)	42	16	58	1,577	949	1,583	2,532	4,108	(h)	63,810	67,976
September .....	(i)	45	17	62	1,585	943	1,583	2,525	4,110	(h)	53,987	58,159
October .....	(i)	42	35	76	1,549	891	1,822	2,713	4,262	(h)	48,474	52,811
November .....	(i)	47	39	87	1,558	1,015	1,705	2,720	4,278	(h)	51,806	56,170
December .....	(i)	47	39	86	1,630	1,093	1,627	2,720	4,350	(h)	55,714	60,149
Total .....	(i)	577	395	972	18,337	12,233	19,347	31,580	49,917	(h)	637,217	688,105
2019 January .....	(i)	58	55	113	1,515	1,095	1,514	2,609	4,124	(h)	55,983	60,219
February .....	(i)	52	49	101	1,393	1,000	1,584	2,584	3,977	(h)	45,142	49,220
March .....	(i)	54	51	105	1,556	944	1,645	2,589	4,145	(h)	44,167	48,417
April .....	(i)	39	24	62	1,450	918	1,422	2,340	3,789	(h)	33,520	37,372
May .....	(i)	40	24	64	1,624	912	1,418	2,331	3,955	(h)	40,110	44,129
June .....	(i)	31	19	50	1,586	882	1,459	2,341	3,928	(h)	44,376	48,353
July .....	(i)	40	9	50	1,498	867	1,459	2,327	3,825	(h)	56,123	59,998
August .....	(i)	42	10	51	1,487	885	1,459	2,344	3,832	(h)	52,585	56,468
September .....	(i)	42	10	52	1,469	845	1,498	2,343	3,813	(h)	47,461	51,326
October .....	(i)	38	29	68	1,480	960	1,400	2,360	3,840	(h)	37,497	41,405
November .....	(i)	44	34	78	1,374	971	1,499	2,470	3,844	(h)	41,962	45,884
December .....	(i)	46	35	81	1,493	964	1,526	2,490	3,983	(h)	40,489	44,553
Total .....	(i)	526	350	876	17,924	11,244	17,885	29,129	47,053	(h)	539,415	587,344
2020 January .....	(i)	41	55	96	1,424	986	1,401	2,387	3,811	(h)	36,717	40,624
February .....	(i)	48	66	114	1,424	940	1,429	2,369	3,793	(h)	31,985	35,892
March .....	(i)	41	55	96	1,398	887	1,434	2,320	3,718	(h)	28,916	32,729
April .....	(i)	30	F 19	F 49	F 1,368	792	F 1,613	F 2,404	F 3,772	(h)	23,608	27,429
May .....	(i)	32	F 15	F 47	F 1,521	753	F 1,251	F 2,004	F 3,525	(h)	26,838	30,410
June .....	(i)	36	F 12	F 48	F 1,533	704	F 1,296	F 2,000	F 3,532	(h)	36,741	40,321
6-Month Total .....	(i)	227	E 222	E 449	E 8,667	5,062	E 8,422	E 13,484	E 22,151	(h)	184,806	207,406
2019 6-Month Total .....	(i)	273	222	496	9,123	5,751	9,043	14,794	23,917	(h)	263,298	287,711
2018 6-Month Total .....	(i)	314	234	548	8,838	6,381	9,456	15,837	24,675	(h)	299,532	324,756

<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).

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 Year .....	38,894	449	2,640	4,196	6,836	7,285	151,548	197,727
2015 Year .....	35,871	394	2,236	4,382	6,618	7,012	195,548	238,431
2016 Year .....	25,309	360	1,675	3,637	5,312	5,672	162,009	192,990
2017 Year .....	23,999	310	1,718	3,242	4,960	5,270	137,687	166,956
2018 January .....	24,769	298	1,648	3,125	4,773	5,072	123,235	153,075
February .....	24,938	287	1,578	3,008	4,586	4,873	120,526	150,337
March .....	24,736	275	1,508	2,891	4,399	4,674	126,008	155,418
April .....	23,417	268	1,544	2,893	4,437	4,705	128,571	156,693
May .....	22,841	262	1,580	2,895	4,474	4,736	127,982	155,559
June .....	22,997	256	1,616	2,896	4,512	4,768	121,041	148,806
July .....	21,025	257	1,681	2,939	4,619	4,876	110,348	136,250
August .....	21,806	259	1,746	2,981	4,727	4,985	103,744	130,535
September .....	22,537	260	1,811	3,023	4,834	5,094	100,384	128,015
October .....	21,878	256	1,809	3,102	4,911	5,166	104,855	131,900
November .....	22,419	251	1,808	3,180	4,988	5,239	104,075	131,733
December .....	21,692	247	1,807	3,258	5,065	5,312	102,793	129,796
2019 January .....	F 21,391	238	1,873	3,116	4,989	5,227	99,378	125,996
February .....	F 23,051	229	1,939	2,974	4,913	5,142	98,835	127,029
March .....	F 23,158	221	2,005	2,832	4,837	5,058	97,102	125,318
April .....	F 21,343	214	2,102	2,883	4,985	5,199	108,852	135,394
May .....	F 22,193	208	2,199	2,934	5,133	5,341	115,888	143,422
June .....	F 21,878	201	2,296	2,985	5,281	5,483	117,710	145,071
July .....	F 21,977	212	2,352	3,046	5,398	5,609	110,933	138,519
August .....	F 22,500	222	2,407	3,107	5,514	5,736	110,560	138,796
September .....	F 23,073	232	2,463	3,168	5,631	5,863	110,952	139,888
October .....	F 24,213	237	2,420	3,198	5,618	5,855	119,045	149,112
November .....	F 24,567	242	2,376	3,228	5,605	5,846	123,033	153,447
December .....	F 24,438	246	2,333	3,258	5,591	5,838	128,497	158,772
2020 January .....	F 24,500	235	2,274	3,179	5,453	5,688	134,402	164,590
February .....	F 24,921	223	2,215	3,099	5,314	5,537	139,558	170,016
March .....	F 24,947	212	2,157	3,019	5,176	5,387	145,451	175,786
April .....	F 25,286	F 195	F 1,825	F 3,655	F 5,480	F 5,675	151,998	182,959
May .....	F 25,640	F 202	F 1,956	F 3,631	F 5,587	F 5,788	R 154,340	R 185,768
June .....	F 24,128	F 199	F 2,084	F 3,608	F 5,691	F 5,890	150,728	180,746

<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.

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

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

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

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

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

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

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

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

**Industrial Other**—Through 1977, monthly consumption data for the other industrial sector (all industrial users minus coke plants) were derived by using reported data to modify baseline consumption figures from the most recent U.S. Census Bureau Annual Survey of Manufactures or Census of Manufactures. For 1978 and 1979, monthly estimates were derived from data reported on Forms EIA-3 and EIA-6. For 1980–1987, monthly figures were estimated by proportioning quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported on Form EIA-3. Beginning in 1988, monthly consumption for the other industrial sector is estimated from reported quarterly data by using ratios derived from industrial production indices published by the Board of Governors of the Federal Reserve System. Indices for six major industry groups are used as the basis for calculating the ratios: food manufacturing, which is North American Industry Classification System (NAICS) code 311; paper manufacturing, NAICS 322; chemical manufacturing, NAICS 325; petroleum and coal products, NAICS 324; 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,” and predecessor forms.

2004–2007: EIA, Form EIA-906, “Power Plant Report,” Form EIA-920, “Combined Heat and Power Plant Report,” and Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing Plants,” and predecessor forms.

2008 forward: EIA, Form EIA-923, “Power Plant Operations Report,” and Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called, “Quarterly Survey of Non-Electric Sector Coal Data”); and, for forecast values, EIA, Short-Term Integrated Forecasting System.

### *Imports and Exports*

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

### *Stock Change*

1950 forward: Calculated from data in Table 6.3.

### *Losses and Unaccounted for*

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

## Table 6.2 Sources

### *Residential and Commercial Total*

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

1949–1976: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook*.

January–September 1977: DOI, BOM, Form 6-1400, “Monthly Coal Report, Retail Dealers—Upper Lake Docks.” October 1977–1979: EIA, Form EIA-2, “Monthly Coal Report, Retail Dealers—Upper Lake Docks.”

1980–1997: EIA, Form EIA-6, “Coal Distribution Report,” quarterly.

1998–2007: DOI, Mine Safety and Health Administration, Form 7000-2, “Quarterly Coal Consumption and Quality Report—Coke Plants.”

### *Commercial Total*

Beginning in 2008, coal consumption by the commercial (excluding residential) sector is reported to EIA. Data for total commercial consumption are from: 2008 forward: EIA, Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called, “Quarterly Survey of Non-Electric Sector Coal Data”); and, for forecast values, EIA, Short-Term Integrated Forecasting System (STIFS).

### *Commercial CHP*

1989 forward: Table 7.4c.

### *Commercial Other*

1949 forward: Calculated as “Commercial Total” minus “Commercial CHP.”

### *Industrial Coke Plants*

1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.

October 1977–1980: EIA, Form EIA-5/5A, “Coke and Coal Chemicals—Monthly/Annual Supplement.”

1981–1984: EIA, Form EIA-5/5A, “Coke Plant Report—Quarterly/Annual Supplement.”

1985 forward: EIA, Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants”; and, for forecast values, EIA, STIFS.

### *Other Industrial Total*

1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.

October 1977–1979: EIA, Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing Plants,” and predecessor forms.

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

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

2008 forward: EIA, Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called, “Quarterly Survey of Non-Electric Sector Coal Data”) and Form EIA-7A, “Coal Production Report,” annual; and, for forecast values, EIA, STIFS.

### *Other Industrial CHP*

1989 forward: Table 7.4c.

### *Other Industrial Non-CHP*

1949 forward: Calculated as “Other Industrial Total” minus “Other Industrial CHP.”

### *Transportation*

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

January–September 1977: DOI, BOM, Form 6-1400, “Monthly Coal Report, Retail Dealers—Upper Lake Docks.”

October–December 1977: EIA, Form EIA-6, “Coal Distribution Report,” quarterly.

### *Electric Power*

1949 forward: Table 7.4b.

## **Table 6.3 Sources**

### *Producers and Distributors*

1973–1979: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), Form 6-1419Q, “Distribution of Bituminous Coal and Lignite Shipments.”

1980–1997: U.S. Energy Information Administration (EIA), Form EIA-6, “Coal Distribution Report,” quarterly.

1998–2007: EIA, Form EIA-6A, “Coal Distribution Report,” annual.

2008 forward: EIA, Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called, “Quarterly Survey of Non-Electric Sector Coal Data”); (data for “Commercial and Institutional Coal Users”); and, for forecast values, EIA, 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 Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Coal Data”); and, for forecast values, EIA, STIFS.

### *Industrial Coke Plants*

1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.

October 1977–1980: EIA, Form EIA-5/5A, “Coke and Coal Chemicals—Monthly/Annual.”

1981–1984: EIA, Form EIA-5/5A, “Coke Plant Report—Quarterly/Annual Supplement.”

1985 forward: EIA, Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants” and, for forecast values, EIA, STIFS.

### *Industrial Other*

1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.

October 1977–2007: EIA, Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing Plants,” and predecessor forms.

2008 forward: EIA, Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called, “Quarterly Survey of Non-Electric Sector Coal Data”); and, for forecast values, EIA, STIFS.

### *Electric Power*

1949 forward: Table 7.5.

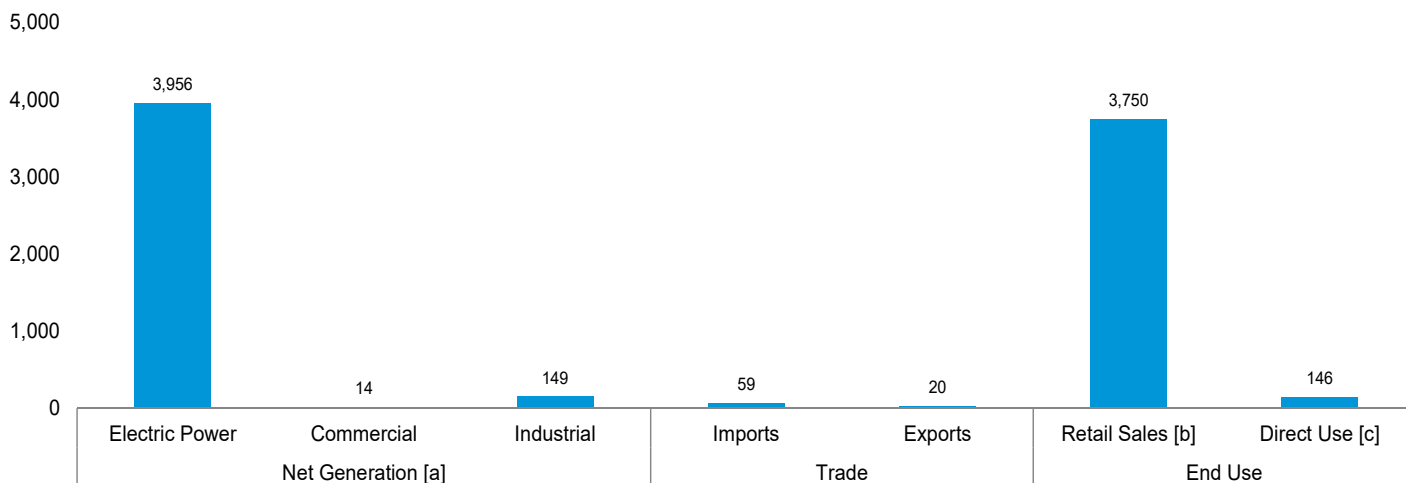
## 7. Electricity

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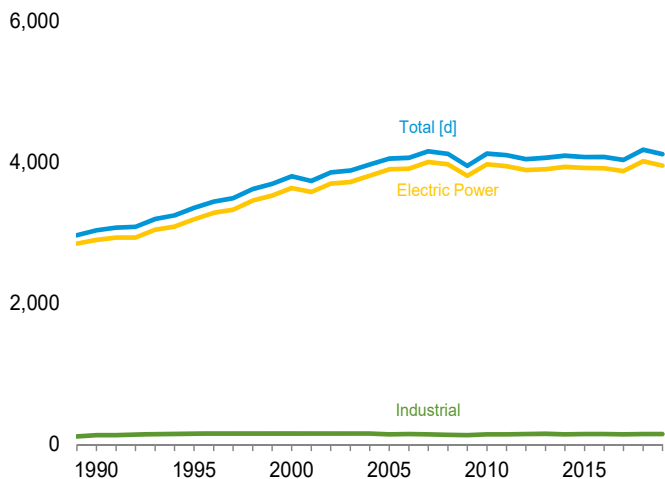
**Figure 7.1 Electricity Overview**

(Billion Kilowatthours)

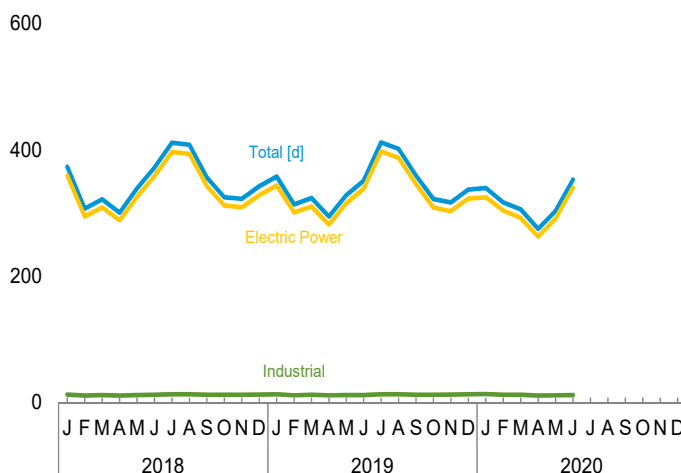
Overview, 2019



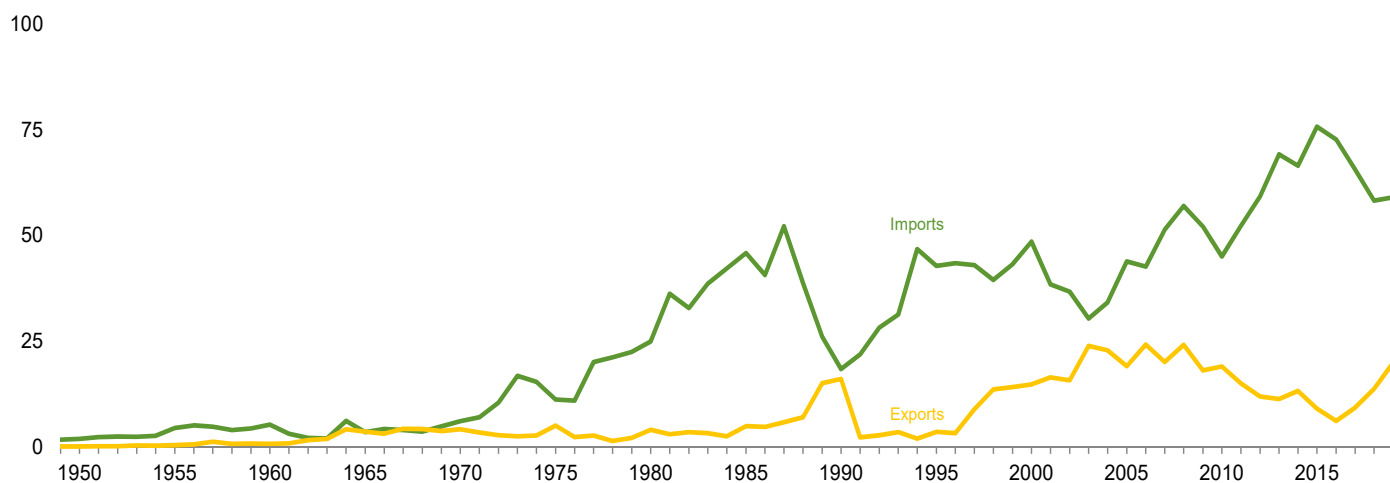
Net Generation [a] by Sector, 1989–2019



Net Generation [a] by Sector, Monthly



Trade, 1949–2019



[a] Data are for utility-scale facilities.

[b] Electricity retail sales to ultimate customers reported by electric utilities and other energy service providers.

[c] See “Direct Use” in Glossary.

[d] Includes commercial sector.

Web Page: <http://www.eia.gov/totalenergy/data/monthly/#electricity>.  
Source: Table 7.1.



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

	Net Generation <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>d</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 Total .....	3,937	13	144	4,094	67	13	53	244	3,765	139	3,903
2015 Total .....	3,919	13	146	4,078	76	9	67	244	3,759	141	3,900
2016 Total .....	3,918	13	146	4,077	73	6	67	241	3,762	140	3,902
2017 Total .....	3,877	13	144	4,034	66	9	56	226	3,723	141	3,864
2018 January .....	359	1	13	373	5	1	4	20	344	E 12	357
February .....	295	1	11	307	5	1	4	7	293	E 11	304
March .....	309	1	12	322	6	1	4	17	297	E 12	309
April .....	289	1	11	301	5	2	3	14	278	E 11	289
May .....	326	1	12	339	5	1	4	28	303	E 12	315
June .....	359	1	12	372	5	1	4	26	338	E 12	350
July .....	397	1	13	411	5	1	4	28	375	E 13	388
August .....	393	1	13	408	6	1	5	19	381	E 13	394
September .....	343	1	12	356	4	1	3	10	337	E 12	349
October .....	312	1	12	325	4	1	3	7	309	E 12	321
November .....	309	1	12	322	4	1	3	22	291	E 12	302
December .....	328	1	13	342	4	1	3	21	312	E 12	325
Total .....	4,018	13	147	4,178	58	14	44	219	3,859	144	4,003
2019 January .....	344	1	13	358	5	1	3	25	324	E 13	336
February .....	301	1	11	314	5	1	3	14	291	E 11	302
March .....	310	1	12	324	5	3	2	17	297	E 12	309
April .....	282	1	12	295	4	2	2	17	269	E 11	280
May .....	315	1	12	328	5	2	3	28	292	E 12	304
June .....	338	1	12	351	5	2	4	27	316	E 12	328
July .....	397	1	13	412	6	2	4	32	370	E 13	383
August .....	387	1	13	402	6	2	4	26	367	E 13	380
September .....	346	1	12	360	5	2	4	16	335	E 12	347
October .....	309	1	12	322	4	1	2	10	302	E 12	314
November .....	303	1	13	317	5	1	4	26	281	E 12	294
December .....	323	1	13	337	5	1	4	23	305	E 13	318
Total .....	3,956	14	149	4,118	59	20	39	262	3,750	E 146	3,896
2020 January .....	325	1	13	339	5	1	3	20	310	E 13	323
February .....	304	1	12	317	4	2	3	18	290	E 12	302
March .....	292	1	12	306	5	1	4	12	285	E 12	297
April .....	263	1	11	275	5	1	3	9	258	E 11	269
May .....	291	1	11	303	5	2	4	26	270	E 11	281
June .....	340	1	12	353	5	1	4	30	316	E 12	327
6-Month Total .....	1,815	6	72	1,893	29	9	21	114	1,729	E 71	1,799
2019 6-Month Total .....	1,891	7	72	1,969	29	11	18	128	1,788	E 71	1,859
2018 6-Month Total .....	1,936	6	71	2,013	31	8	23	113	1,854	E 70	1,924

<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.

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

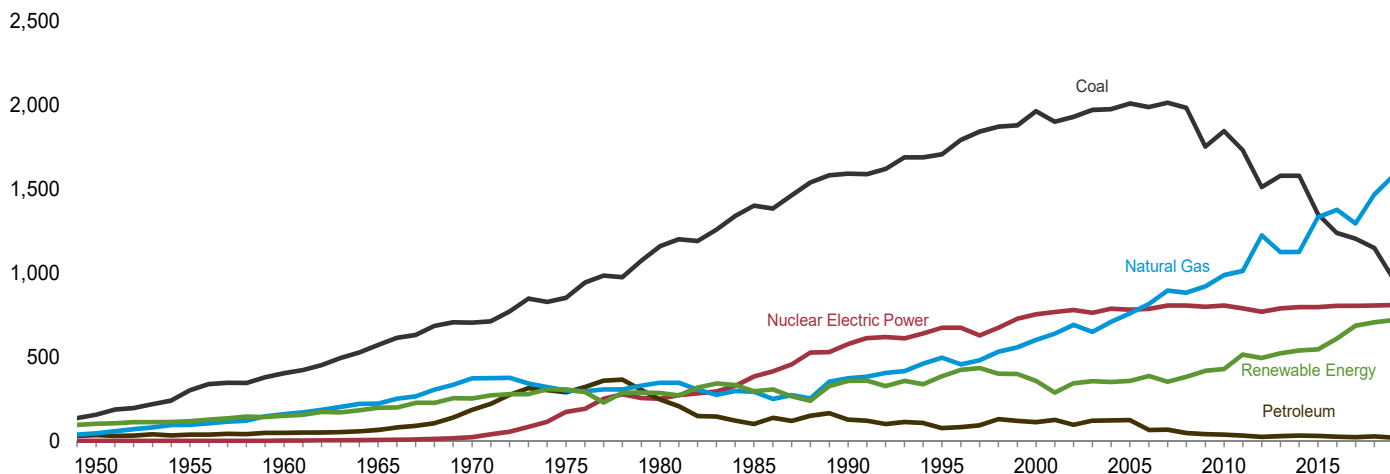
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#electricity> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

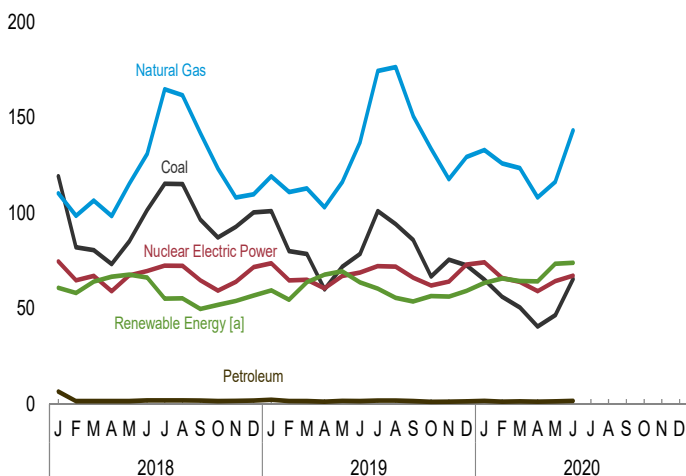
**Figure 7.2 Electricity Net Generation**

(Billion Kilowatthours)

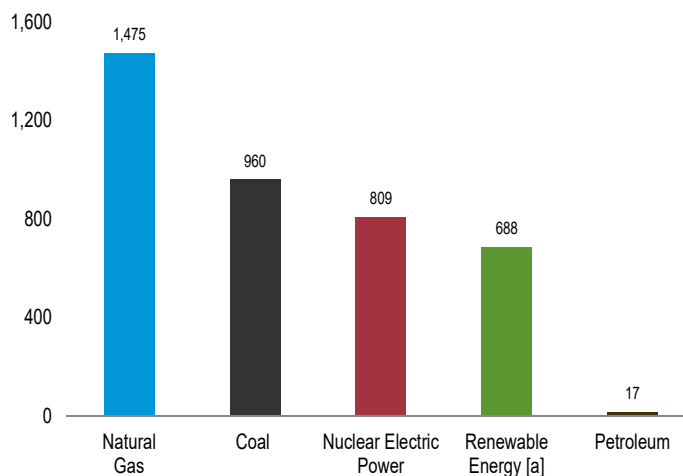
Total (All Sectors), Major Sources, 1949–2019



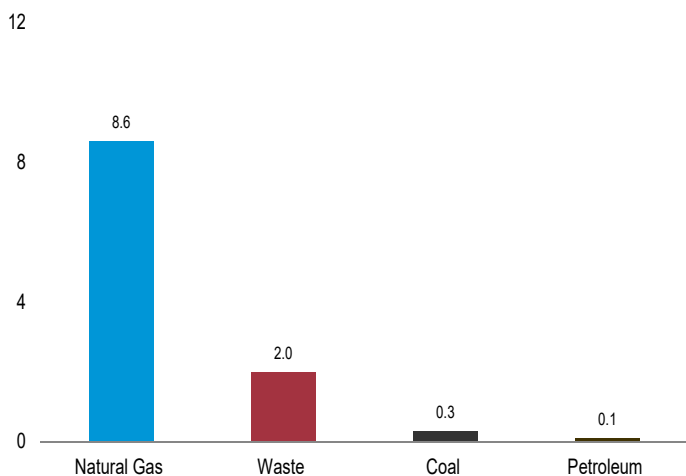
Total (All Sectors), Major Sources, Monthly



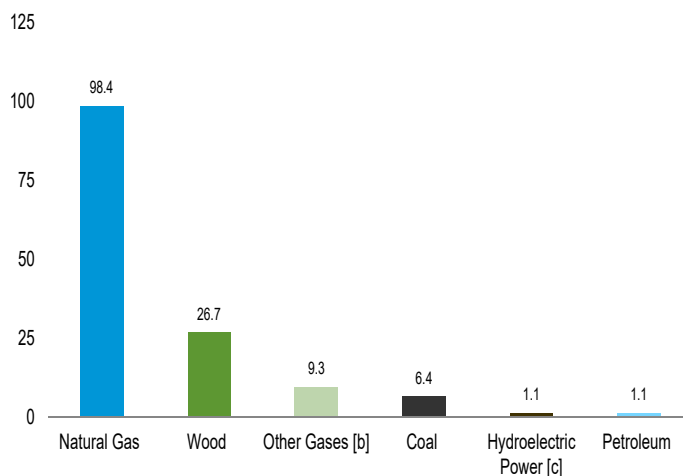
Electric Power Sector, Major Sources, 2019



Commercial Sector, Major Sources, 2019



Industrial Sector, Major Sources, 2019



[a] Conventional hydroelectric power, wood, waste, geothermal, solar, and wind.

[b] Blast furnace gas, and other manufactured and waste derived from fossil fuels.

[c] Conventional hydroelectric power.

Note: Data are for utility-scale facilities.

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

Sources: Tables 7.2a–7.2c.

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

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

	Fossil Fuels					Nuclear Electric Power	Hydro- electric Pumped Storage <sup>e</sup>	Renewable Energy						Total <sup>j</sup>
	Coal <sup>a</sup>	Petro- leum <sup>b</sup>	Natural Gas <sup>c</sup>	Other Gases <sup>d</sup>	Conven- tional 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	( )	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	601,038	13,955	753,893	-5,539	275,573	37,595	23,131	14,093	493	5,593	3,802,105	
2001 Total .....	1,903,956	124,880	639,129	9,039	768,826	-8,823	216,961	35,200	14,548	13,741	543	6,737	3,736,644	
2002 Total .....	1,933,130	94,567	691,006	11,463	780,064	-8,743	264,329	38,665	15,044	14,491	555	10,354	3,858,452	
2003 Total .....	1,973,737	119,406	649,908	15,600	763,733	-8,535	275,806	37,529	15,812	14,424	534	11,187	3,883,185	
2004 Total .....	1,978,301	121,145	710,100	15,252	788,528	-8,488	268,417	38,117	15,421	14,811	575	14,144	3,970,555	
2005 Total .....	2,012,873	122,225	760,960	13,464	781,986	-6,558	270,321	38,856	15,420	14,692	550	17,811	4,055,423	
2006 Total .....	1,990,511	64,166	816,441	14,177	787,219	-6,558	289,246	38,762	16,099	14,568	508	26,589	4,064,702	
2007 Total .....	2,016,456	65,739	896,590	13,453	806,425	-6,896	247,510	39,014	16,525	14,637	612	34,450	4,156,745	
2008 Total .....	1,985,801	46,243	882,981	11,707	806,208	-6,288	254,831	37,300	17,734	14,840	864	55,363	4,119,388	
2009 Total .....	1,755,904	38,937	920,979	10,632	798,855	-4,627	273,445	36,050	18,443	15,009	891	73,886	3,950,331	
2010 Total .....	1,847,290	37,061	987,697	11,313	806,968	-5,501	260,203	37,172	18,917	15,219	1,212	94,652	4,125,060	
2011 Total .....	1,733,430	30,182	1,013,689	11,566	790,204	-6,421	319,355	37,449	19,222	15,316	1,818	120,177	4,100,141	
2012 Total .....	1,514,043	23,190	1,225,894	11,898	769,331	-4,950	276,240	37,799	19,823	15,562	4,327	140,822	4,047,765	
2013 Total .....	1,581,115	27,164	1,124,836	12,853	789,016	-4,681	268,565	40,028	20,830	15,775	9,036	167,840	4,065,964	
2014 Total .....	1,581,710	30,232	1,126,609	12,022	797,166	-6,174	259,367	42,340	21,650	15,877	17,691	181,655	4,093,606	
2015 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 Total .....	1,239,149	24,205	1,378,307	12,807	805,694	-6,686	267,812	40,947	21,813	15,826	36,054	226,993	4,076,675	
2017 Total .....	1,205,835	21,390	1,296,442	12,469	804,950	-6,495	300,333	41,124	21,610	15,927	53,287	254,303	4,034,271	
2018 January .....	119,284	6,520	110,293	1,097	74,649	-547	25,064	3,686	1,817	1,341	3,319	25,599	373,230	
February .....	82,050	1,558	98,512	1,092	64,790	-315	24,902	3,235	1,716	1,274	3,896	23,189	306,894	
March .....	80,626	1,472	106,524	1,158	67,033	-490	25,861	3,547	1,822	1,367	5,056	26,464	321,547	
April .....	73,346	1,538	98,371	1,099	59,133	-377	28,115	3,102	1,726	1,188	6,057	26,431	300,756	
May .....	85,227	1,557	115,284	1,167	67,320	-390	30,444	3,352	1,732	1,383	6,849	23,953	338,948	
June .....	101,503	1,901	130,826	1,091	69,688	-433	27,597	3,471	1,720	1,300	7,415	24,703	371,886	
July .....	115,376	1,901	164,749	1,172	72,456	-644	25,100	3,749	1,750	1,370	6,755	16,447	411,290	
August .....	115,129	1,927	161,676	1,301	72,282	-747	22,017	3,630	1,758	1,367	6,695	19,486	408,028	
September .....	96,544	1,854	141,786	1,104	64,725	-603	19,166	3,281	1,590	1,328	5,961	18,520	356,258	
October .....	87,264	1,577	123,142	1,016	59,397	-492	19,548	3,216	1,743	1,273	4,970	21,194	324,932	
November .....	92,819	1,661	108,168	1,045	63,954	-343	21,913	3,264	1,724	1,331	3,743	22,016	322,369	
December .....	100,319	1,761	109,802	1,120	71,657	-522	22,797	3,404	1,799	1,446	3,110	24,306	342,139	
Total .....	1,149,487	25,226	1,469,133	13,463	807,084	-5,905	292,524	40,936	20,896	15,967	63,825	272,667	4,178,277	
2019 January .....	101,008	2,198	119,307	1,115	73,701	-323	24,210	3,533	1,612	1,422	3,655	25,122	357,754	
February .....	80,104	1,552	111,005	1,110	64,715	-389	21,826	3,165	1,454	1,308	3,827	23,000	313,680	
March .....	78,516	1,462	112,945	1,251	65,080	-409	25,546	3,257	1,590	1,437	5,910	26,116	323,782	
April .....	60,008	1,234	103,006	1,071	60,581	-103	25,483	3,027	1,464	1,239	6,835	29,711	294,577	
May .....	71,883	1,690	116,236	1,101	67,124	-368	30,061	3,365	1,542	1,347	7,191	25,973	328,269	
June .....	78,610	1,531	136,994	1,025	68,805	-385	26,469	3,339	1,554	1,362	8,006	22,947	351,363	
July .....	100,981	1,775	174,341	1,290	72,199	-622	23,730	3,569	1,587	1,412	8,169	22,024	411,616	
August .....	94,177	1,771	176,458	1,202	71,911	-579	21,041	3,717	1,602	1,409	7,888	19,869	401,665	
September .....	85,918	1,580	150,753	1,139	66,064	-671	16,324	3,282	1,506	1,384	6,752	24,385	359,545	
October .....	66,829	1,153	133,667	997	62,033	-373	16,292	3,081	1,565	1,277	6,131	28,136	321,875	
November .....	75,560	1,250	117,762	1,196	64,125	-509	20,520	3,107	1,497	1,112	4,377	25,603	316,672	
December .....	72,554	1,370	129,342	1,136	73,074	-529	22,206	3,407	1,588	1,301	3,494	27,183	337,253	
Total .....	966,148	18,567	1,581,815	13,634	809,409	-5,261	273,707	39,851	18,561	16,011	72,234	300,071	4,118,051	
2020 January .....	65,170	1,620	132,980	1,211	74,204	-406	24,286	3,349	1,609	1,255	4,555	28,403	339,320	
February .....	56,072	1,202	126,024	1,234	65,950	-247	25,077	3,154	1,461	1,156	5,652	29,235	316,934	
March .....	50,586	1,412	123,569	1,109	63,997	-353	22,269	3,223	1,620	1,490	6,314	29,483	305,779	
April .....	40,576	1,249	108,138	801	59,170	-325	20,771	2,992	1,532	1,356	8,010	29,534	274,876	
May .....	46,488	1,326	116,236	862	64,338	-367	29,468	3,103	1,550	1,421	9,742	28,180	303,434	
June .....	65,475	1,676	143,247	832	67,205	-499	28,621	2,994	1,409	1,342	9,467	30,147	352,936	
6-Month Total .....	324,367	8,484	750,193	6,049	394,865	-2,196	150,492	18,816	9,180	8,020	43,739	174,983	1,893,280	
2019 6-Month Total .....	470,129	9,668	699,493	6,673	400,005	-1,977	153,595	19,686	9,215	8,115	35,424	152,869	1,969,424	
2018 6-Month Total .....	542,037	14,545	659,810	6,704	402,613	-2,553	161,984	20,393	10,532	7,853	32,592	150,339	2,013,261	

<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>j</sup>
	Coal <sup>a</sup>	Petro- leum <sup>b</sup>	Natural Gas <sup>c</sup>	Other Gases <sup>d</sup>			Conven- tional 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 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 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 Total .....	1,229,663	22,710	1,279,380	3,912	805,694	-6,686	266,326	13,420	18,183	15,826	35,497	226,790	3,918,078
2017 Total .....	1,197,838	20,039	1,196,753	4,126	804,950	-6,495	298,711	13,641	18,084	15,927	52,724	254,074	3,877,453
2018 January .....	118,557	6,348	101,469	344	74,649	-547	24,962	1,320	1,532	1,341	3,288	25,570	359,449
February .....	81,399	1,451	90,702	337	64,790	-315	24,794	1,137	1,455	1,274	3,863	23,165	294,633
March .....	79,983	1,368	98,597	348	67,033	-490	25,752	1,200	1,534	1,367	5,009	26,435	308,747
April .....	72,787	1,446	90,614	354	59,133	-377	27,990	948	1,450	1,188	6,002	26,406	288,509
May .....	84,634	1,453	107,014	389	67,320	-390	30,319	1,038	1,456	1,383	6,788	23,932	325,905
June .....	100,894	1,795	122,172	316	69,688	-433	27,502	1,168	1,460	1,300	7,347	24,683	358,523
July .....	114,749	1,784	155,264	359	72,456	-644	25,003	1,271	1,480	1,370	6,691	16,432	396,854
August .....	114,516	1,829	152,150	392	72,282	-747	21,908	1,217	1,483	1,367	6,634	19,830	393,497
September .....	95,962	1,762	132,992	332	64,725	-603	19,060	1,044	1,341	1,328	5,911	18,502	342,917
October .....	86,736	1,473	114,533	254	59,397	-492	19,426	989	1,465	1,273	4,926	21,170	311,750
November .....	92,258	1,565	99,419	311	63,954	-343	21,781	1,030	1,453	1,331	3,711	21,991	309,062
December .....	99,698	1,655	100,896	349	71,657	-522	22,651	1,022	1,514	1,413	3,083	24,282	328,320
Total .....	1,142,173	23,928	1,365,822	4,086	807,084	-5,905	291,148	13,385	17,623	15,934	63,253	272,396	4,018,167
2019 January .....	100,368	2,088	109,910	381	73,701	-323	24,088	1,233	1,351	1,379	3,619	25,096	343,564
February .....	79,537	1,461	102,843	377	64,715	-389	21,722	1,070	1,222	1,267	3,791	22,977	301,173
March .....	77,959	1,372	104,340	381	65,080	-409	25,425	997	1,329	1,393	5,852	26,090	310,421
April .....	59,490	1,138	94,712	338	60,581	-103	25,369	873	1,235	1,212	6,771	29,681	281,886
May .....	71,364	1,596	107,764	338	67,124	-368	29,933	1,170	1,333	1,310	7,123	25,948	315,310
June .....	78,092	1,435	128,381	348	68,805	-385	26,351	1,079	1,325	1,328	7,930	22,924	338,272
July .....	100,394	NM	164,974	408	72,199	-622	23,619	1,199	1,362	1,378	8,089	22,004	397,301
August .....	93,604	1,665	166,966	404	71,911	-579	20,938	1,301	1,368	1,379	7,812	19,852	387,315
September .....	85,373	1,474	141,808	358	66,064	-671	16,231	1,121	1,289	1,355	6,688	24,364	346,092
October .....	66,301	1,069	124,805	227	62,033	-373	16,197	957	1,326	1,239	6,077	28,111	308,599
November .....	75,010	1,158	108,497	371	64,125	-509	20,414	912	1,262	1,070	4,335	25,580	302,845
December .....	72,015	1,276	119,734	374	73,074	-529	22,089	1,100	1,339	1,259	3,460	27,158	323,003
Total .....	959,507	17,348	1,474,734	4,306	809,409	-5,261	272,377	13,012	15,741	15,569	71,547	299,785	3,955,781
2020 January .....	64,610	1,524	123,171	387	74,204	-406	24,167	1,056	1,359	1,219	4,516	28,378	324,839
February .....	55,546	1,116	117,152	397	65,950	-247	24,960	1,022	1,228	1,114	5,606	29,208	303,641
March .....	50,082	1,329	114,699	313	63,997	-353	22,149	988	1,372	1,446	6,258	29,456	292,398
April .....	40,125	1,189	100,211	148	59,170	-325	20,651	845	1,299	1,316	7,938	29,506	262,706
May .....	46,043	1,259	108,186	159	64,338	-367	29,340	963	1,319	1,382	9,656	28,155	291,061
June .....	65,048	1,586	134,693	133	67,205	-499	28,503	921	1,196	1,309	9,387	30,070	340,127
6-Month Total .....	321,454	8,002	698,112	1,537	394,865	-2,196	149,770	5,795	7,773	7,786	43,361	174,773	1,814,772
2019 6-Month Total .....	466,810	9,089	647,950	2,162	400,005	-1,977	152,889	6,422	7,795	7,890	35,086	152,716	1,890,626
2018 6-Month Total .....	538,254	13,861	610,567	2,088	402,613	-2,553	161,319	6,812	8,887	7,853	32,297	150,191	1,935,766

<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. NM=Not meaningful.

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	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>	
				Waste <sup>f</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	
2014 Total .....	595	255	7,227	2,681	12,520	12,341	1,934	86,209	8,664	1,282	27,239	1,367	144,083	
2015 Total .....	509	191	7,471	2,637	12,595	10,896	1,552	88,355	9,401	1,410	27,318	1,243	145,712	
2016 Total .....	383	82	7,730	2,496	12,706	9,103	1,412	91,197	8,895	1,269	27,458	1,134	145,890	
2017 Total .....	329	112	8,042	2,515	13,060	7,669	1,239	91,647	8,343	1,382	27,412	1,012	143,758	
2018 January .....	40	42	671	203	1,114	687	130	8,153	752	83	2,357	81	12,668	
February .....	32	8	626	184	995	619	99	7,184	755	89	2,091	77	11,265	
March .....	27	9	647	204	1,058	616	95	7,280	811	87	2,342	84	11,742	
April .....	24	9	585	199	989	535	83	7,172	744	102	2,151	77	11,258	
May .....	21	7	656	203	1,076	572	97	7,614	778	101	2,310	73	11,967	
June .....	20	7	737	202	1,163	590	98	7,918	775	74	2,294	57	12,199	
July .....	21	11	875	205	1,298	606	106	8,609	813	78	2,470	65	13,138	
August .....	23	9	892	208	1,318	590	89	8,634	909	91	2,402	66	13,212	
September .....	24	8	771	193	1,156	558	85	8,022	773	90	2,228	56	12,185	
October .....	20	7	668	204	1,055	507	97	7,941	762	108	2,223	74	12,127	
November .....	25	13	622	193	993	536	83	8,127	734	116	2,231	78	12,313	
December .....	24	10	669	205	1,095	596	95	8,237	771	130	2,374	80	12,724	
Total .....	303	140	8,419	2,404	13,312	7,011	1,157	94,892	9,377	1,149	27,475	868	146,798	
2019 January .....	33	14	719	188	1,167	607	96	8,677	734	102	2,292	73	13,023	
February .....	28	9	670	163	1,064	539	82	7,492	734	87	2,086	69	11,443	
March .....	32	9	702	181	1,157	525	81	7,903	870	101	2,249	80	12,204	
April .....	21	8	644	157	1,046	497	88	7,650	733	94	2,151	72	11,645	
May .....	19	8	682	145	1,084	500	86	7,791	764	102	2,193	63	11,874	
June .....	14	7	690	165	1,106	504	89	7,923	677	97	2,255	65	11,985	
July .....	NM	10	813	164	1,247	566	149	8,554	882	94	2,354	61	13,068	
August .....	18	13	841	168	1,268	555	93	8,651	798	87	2,406	65	13,082	
September .....	21	11	738	162	1,141	525	95	8,206	781	81	2,154	56	12,313	
October .....	20	10	701	165	1,099	508	74	8,161	770	83	2,118	74	12,176	
November .....	21	9	710	161	1,099	529	83	8,556	825	91	2,189	74	12,727	
December .....	26	10	738	170	1,145	513	84	8,870	762	102	2,302	79	13,105	
Total .....	275	117	8,647	1,989	13,624	6,367	1,102	98,434	9,328	1,120	26,749	832	148,645	
2020 January .....	22	11	753	169	1,157	538	86	9,056	824	100	2,285	80	13,324	
February .....	28	6	676	160	1,075	497	NM	8,195	836	97	2,126	73	12,218	
March .....	21	7	657	174	1,076	483	76	8,213	796	104	2,231	74	12,305	
April .....	12	5	573	159	968	439	56	7,354	653	104	2,147	73	11,201	
May .....	15	7	606	161	1,034	430	60	7,444	704	102	2,137	71	11,339	
June .....	21	7	686	156	1,104	407	83	7,868	698	93	2,065	57	11,706	
6-Month Total .....	120	43	3,951	979	6,414	2,793	439	48,130	4,511	602	12,991	429	72,094	
2019 6-Month Total .....	147	55	4,107	998	6,624	3,172	523	47,436	4,511	583	13,226	421	72,174	
2018 6-Month Total .....	165	81	3,921	1,196	6,396	3,618	602	45,321	4,616	537	13,546	449	71,099	

<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, geothermal, 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. NM=Not meaningful.

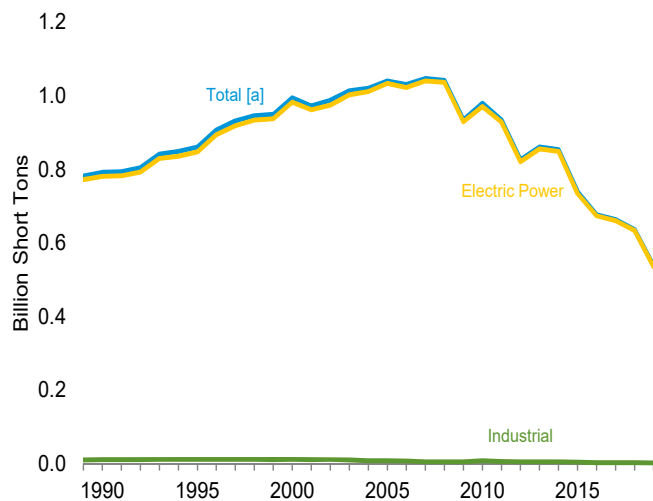
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is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

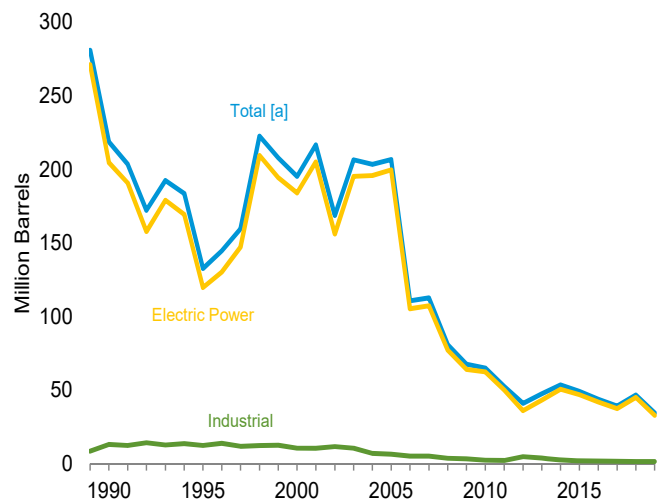
Sources: See end of section.

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

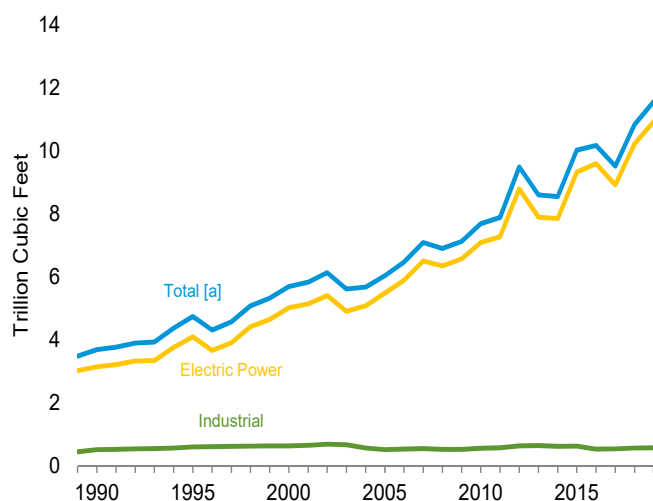
Coal by Sector, 1989–2019



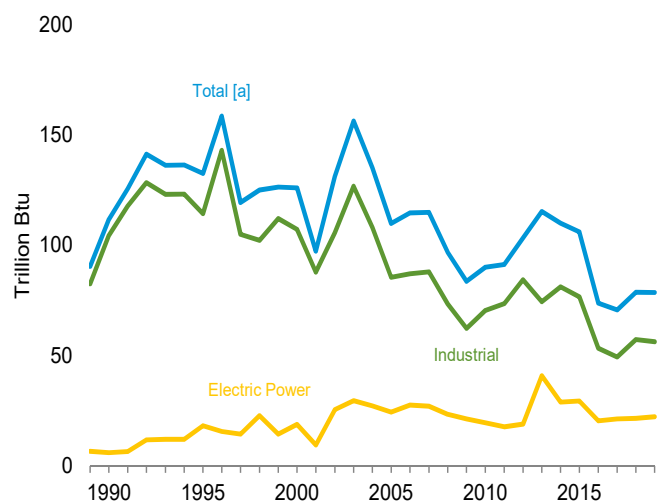
Petroleum by Sector, 1989–2019



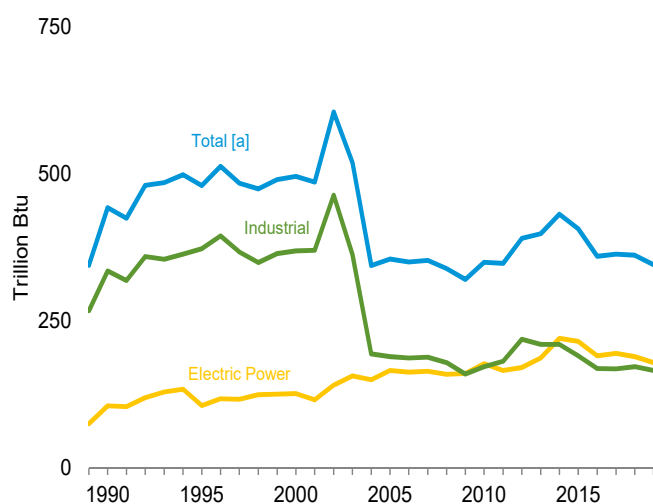
Natural Gas by Sector, 1989–2019



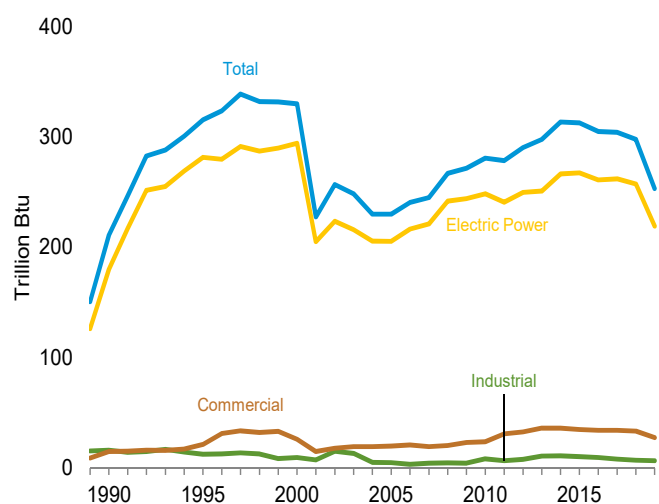
Other Gases [b] by Sector, 1989–2019



Wood by Sector, 1989–2019



Waste by Sector, 1989–2019



[a] Includes commercial sector.

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

Note: Data are for utility-scale facilities.

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

Sources: Tables 7.3a-7.3c.

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

		Petroleum					Natural Gas <sup>f</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>	
	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)	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 Total .....	853,634	14,465	14,704	2,363	4,412	53,593	8,544	110	431	314	200
2015 Total .....	739,594	12,438	14,124	2,363	4,044	49,145	10,017	106	407	313	204
2016 Total .....	677,371	9,662	11,195	1,548	4,253	43,671	10,170	74	360	305	199
2017 Total .....	663,911	9,707	10,442	1,547	3,490	39,144	9,508	71	364	304	190
2018 January .....	64,845	5,238	3,644	585	377	11,353	806	6	33	26	16
February .....	45,793	676	658	117	305	2,976	707	6	29	24	15
March .....	44,474	735	650	112	255	2,770	772	7	31	26	16
April .....	40,515	794	707	100	271	2,956	723	7	27	25	15
May .....	47,293	958	786	118	212	2,923	869	7	30	25	16
June .....	56,078	916	873	106	338	3,583	974	6	31	25	16
July .....	63,818	754	874	125	367	3,590	1,246	7	33	25	16
August .....	63,737	803	931	136	352	3,631	1,209	8	32	25	17
September .....	53,914	752	976	136	325	3,488	1,052	6	29	23	15
October .....	48,422	798	874	142	229	2,956	909	6	28	24	16
November .....	51,702	920	754	125	271	3,154	785	6	29	24	16
December .....	55,624	879	679	182	321	3,347	783	6	30	25	16
Total .....	636,213	14,223	12,407	1,985	3,623	46,727	10,833	79	362	298	190
2019 January .....	55,831	1,124	1,025	274	329	4,066	860	6	31	22	17
February .....	45,056	668	591	152	283	2,828	794	6	27	19	14
March .....	44,038	697	614	138	266	2,780	816	7	28	22	16
April .....	33,432	618	618	161	182	2,308	755	6	26	20	15
May .....	40,061	771	744	138	298	3,140	852	6	30	21	16
June .....	44,274	775	808	148	218	2,822	1,013	6	28	21	16
July .....	56,062	767	900	152	314	3,390	1,295	7	31	22	17
August .....	52,512	763	967	163	278	3,281	1,309	7	33	22	17
September .....	47,418	702	800	159	259	2,957	1,115	7	29	21	16
October .....	37,435	728	795	174	82	2,107	981	6	26	21	16
November .....	41,918	760	714	133	130	2,255	842	7	26	21	16
December .....	40,429	754	774	162	167	2,526	919	6	30	22	16
Total .....	538,465	9,128	9,349	1,953	2,806	34,460	11,551	79	346	253	192
2020 January .....	36,697	791	765	155	285	3,135	952	7	28	22	16
February .....	31,971	646	621	130	174	2,267	903	7	27	20	14
March .....	28,917	550	587	194	273	2,695	900	7	27	22	16
April .....	23,617	467	545	136	230	2,298	780	5	25	20	15
May .....	26,827	568	589	103	248	2,500	849	5	26	21	16
June .....	36,706	710	708	116	329	3,180	1,067	5	25	19	15
6-Month Total .....	184,736	3,732	3,814	833	1,539	16,075	5,451	36	159	124	92
2019 6-Month Total .....	262,692	4,654	4,399	1,010	1,576	17,945	5,090	38	171	125	94
2018 6-Month Total .....	298,998	9,317	7,318	1,140	1,757	26,561	4,850	39	181	151	95

<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)

	Coal <sup>a</sup>	Petroleum					Natural Gas <sup>f</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> .....	781,301	16,394	183,285	25	1,008	204,745	3,147	6	106	180	(s)
1995 Total .....	847,854	18,066	88,895	441	2,452	119,663	4,094	18	106	282	2
2000 Total .....	982,713	29,722	138,047	403	3,155	183,946	5,014	19	126	294	1
2001 Total .....	961,523	29,056	159,150	374	3,308	205,119	5,142	9	116	205	109
2002 Total .....	975,251	21,810	104,577	1,243	5,705	156,154	5,408	25	141	224	137
2003 Total .....	1,003,036	27,441	137,361	1,937	5,719	195,336	4,909	30	156	216	136
2004 Total .....	1,012,459	18,793	138,831	2,511	7,135	195,809	5,075	27	150	206	131
2005 Total .....	1,033,567	19,450	138,337	2,591	7,877	199,760	5,485	24	166	205	116
2006 Total .....	1,022,802	12,578	56,347	1,783	6,905	105,235	5,891	28	163	216	117
2007 Total .....	1,041,346	15,135	62,072	2,496	5,523	107,316	6,502	27	165	221	117
2008 Total .....	1,036,891	12,318	37,222	2,608	5,000	77,149	6,342	23	159	242	122
2009 Total .....	929,692	11,848	27,768	2,110	4,485	64,151	6,567	21	160	244	115
2010 Total .....	971,245	13,677	23,560	1,848	4,679	62,477	7,085	20	177	249	116
2011 Total .....	928,857	10,961	13,861	1,655	4,726	50,105	7,265	18	166	241	133
2012 Total .....	820,762	9,000	11,292	1,339	2,861	35,937	8,788	19	171	250	132
2013 Total .....	855,546	9,511	11,322	1,488	4,189	43,265	7,888	41	187	251	130
2014 Total .....	848,803	14,052	14,132	2,157	4,039	50,537	7,849	29	220	266	127
2015 Total .....	735,433	12,056	13,893	2,086	3,789	46,978	9,322	29	215	268	127
2016 Total .....	674,239	9,421	11,056	1,284	4,018	41,853	9,590	20	191	261	126
2017 Total .....	661,033	9,398	10,299	1,332	3,273	37,394	8,917	21	195	262	121
2018 January .....	64,579	5,148	3,615	566	362	11,142	753	2	19	22	11
February .....	45,555	654	644	90	294	2,855	660	2	16	21	10
March .....	44,241	712	637	95	241	2,649	725	2	17	22	11
April .....	40,315	772	697	83	256	2,834	676	2	14	21	10
May .....	47,076	928	779	96	197	2,790	819	2	15	22	10
June .....	55,862	889	864	89	320	3,439	922	2	17	22	11
July .....	63,599	715	868	87	350	3,423	1,189	2	18	22	11
August .....	63,526	767	922	122	338	3,500	1,152	2	17	22	11
September .....	53,708	716	969	127	310	3,359	999	2	15	19	10
October .....	48,243	772	862	125	212	2,820	858	1	14	21	10
November .....	51,493	884	739	109	258	3,023	733	1	14	21	10
December .....	55,397	840	664	168	305	3,198	730	2	15	22	11
Total .....	633,593	13,795	12,259	1,757	3,444	45,030	10,215	21	189	257	125
2019 January .....	55,603	1,088	1,011	257	315	3,929	805	2	17	18	11
February .....	44,850	646	581	129	272	2,717	745	2	14	17	10
March .....	43,857	671	604	120	253	2,660	765	2	14	19	11
April .....	33,261	593	610	133	167	2,171	706	2	13	18	10
May .....	39,874	743	737	117	283	3,011	801	2	16	19	11
June .....	44,093	746	801	129	204	2,696	961	2	15	18	11
July .....	55,851	731	896	135	289	3,205	1,239	2	16	19	11
August .....	52,305	727	960	144	263	3,144	1,253	2	18	19	12
September .....	47,223	663	794	140	243	2,809	1,063	2	15	18	11
October .....	37,252	694	789	157	68	1,978	929	1	13	18	11
November .....	41,724	730	707	110	116	2,124	788	2	12	18	11
December .....	40,237	727	765	142	152	2,396	863	2	15	19	11
Total .....	536,130	8,759	9,254	1,713	2,623	32,841	10,918	22	179	219	132
2020 January .....	36,500	764	758	132	270	3,004	895	2	14	19	11
February .....	31,783	624	612	112	161	2,152	850	2	14	17	10
March .....	28,740	525	581	176	260	2,582	847	2	13	19	11
April .....	23,464	448	540	120	222	2,216	733	1	11	18	11
May .....	26,676	541	583	83	237	2,394	801	1	13	18	11
June .....	36,564	681	701	99	316	3,060	1,014	1	13	17	10
6-Month Total .....	183,729	3,584	3,775	723	1,465	15,408	5,140	8	78	107	64
2019 6-Month Total .....	261,538	4,488	4,344	884	1,493	17,183	4,784	11	89	108	65
2018 6-Month Total .....	297,628	9,102	7,236	1,019	1,670	25,708	4,555	11	96	131	62

<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 Total .....	202	462	72	36	4,629	2,594	623	81	210	11	54
2015 Total .....	163	260	70	35	3,999	1,907	625	77	191	10	58
2016 Total .....	111	116	46	34	3,021	1,701	534	53	169	10	53
2017 Total .....	95	204	50	34	2,783	1,545	541	49	169	8	49
2018 January .....	11	68	4	3	255	144	49	5	15	1	4
February .....	9	16	4	3	230	105	43	5	13	1	3
March .....	8	13	4	3	224	108	43	5	15	1	4
April .....	7	15	4	3	193	107	43	5	13	1	4
May .....	6	18	4	3	211	115	46	5	15	1	4
June .....	6	18	5	3	210	126	47	5	15	(s)	4
July .....	6	27	6	3	212	140	51	5	16	1	4
August .....	7	24	6	3	204	108	52	6	15	1	4
September .....	7	19	5	3	199	110	48	5	14	(s)	3
October .....	6	17	4	3	173	120	47	5	14	1	4
November .....	7	24	4	3	202	108	48	4	14	1	4
December .....	7	21	4	3	221	128	49	5	15	1	4
Total .....	87	279	53	33	2,534	1,418	565	57	172	7	46
2019 January .....	10	25	5	3	218	112	51	4	14	1	4
February .....	8	15	4	2	198	97	44	4	13	1	3
March .....	9	17	4	2	172	103	47	5	14	1	3
April .....	6	16	4	2	165	121	45	4	13	1	3
May .....	6	18	4	2	181	112	47	5	14	(s)	3
June .....	4	18	4	2	176	109	47	4	14	(s)	3
July .....	6	25	5	2	205	160	50	5	15	(s)	3
August .....	5	22	5	2	202	115	51	5	15	1	4
September .....	6	27	5	2	189	120	48	5	13	(s)	4
October .....	6	24	4	2	177	104	48	5	13	1	3
November .....	6	24	4	2	188	107	50	5	14	1	3
December .....	7	22	5	2	184	108	52	5	14	1	3
Total .....	78	252	54	27	2,257	1,368	579	56	166	7	40
2020 January .....	6	24	5	2	191	108	53	5	14	1	3
February .....	9	13	4	2	179	102	48	5	13	1	3
March .....	6	17	4	2	171	96	49	5	14	1	3
April .....	4	12	4	2	150	70	43	4	13	1	3
May .....	5	20	4	2	146	86	45	4	13	1	3
June .....	7	20	4	2	135	100	49	5	13	(s)	3
6-Month Total .....	36	105	24	13	972	562	287	28	81	3	18
2019 6-Month Total .....	42	108	26	14	1,112	653	280	27	82	3	20
2018 6-Month Total .....	47	148	25	17	1,323	705	270	28	85	4	23

<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).

(s)=Less than 0.5 trillion Btu.

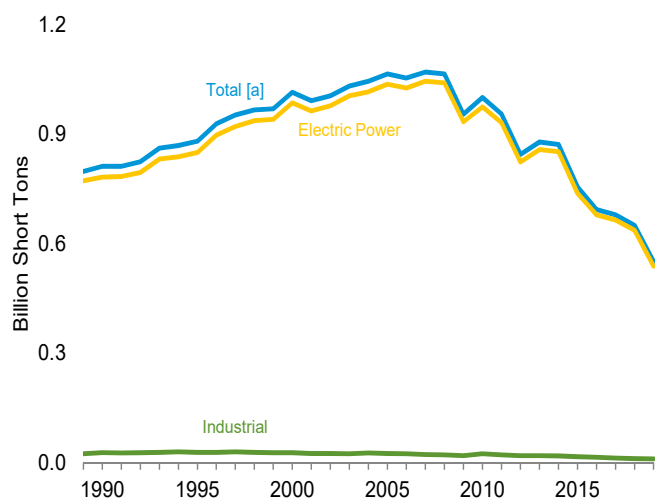
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Data are for fuels consumed to produce electricity. Through 1988, data are not available. •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

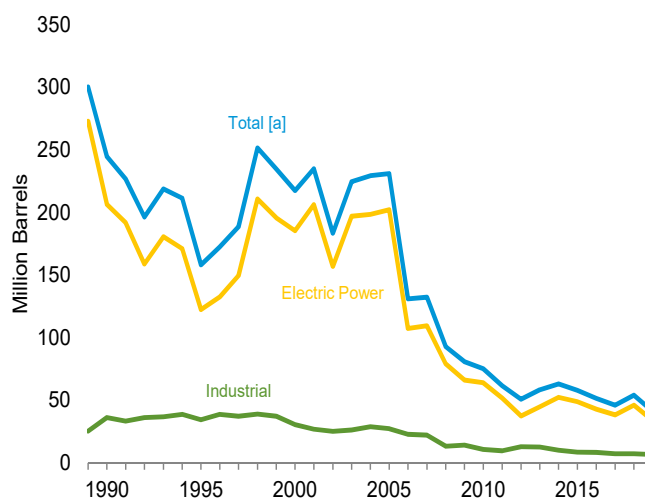
Sources: • **1989–1997:** U.S. Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906,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

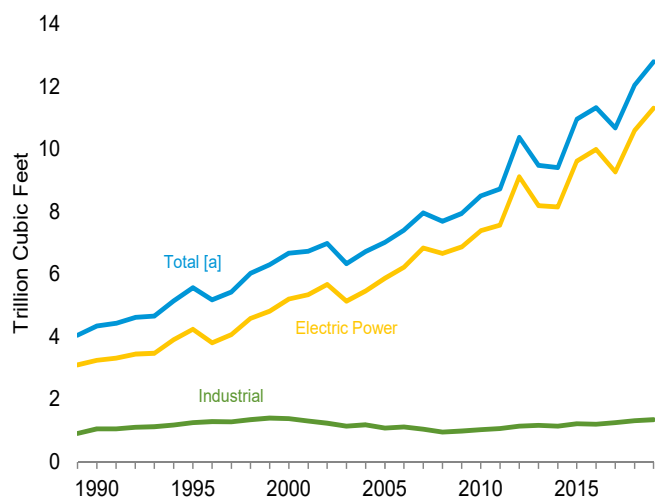
Coal by Sector, 1989–2019



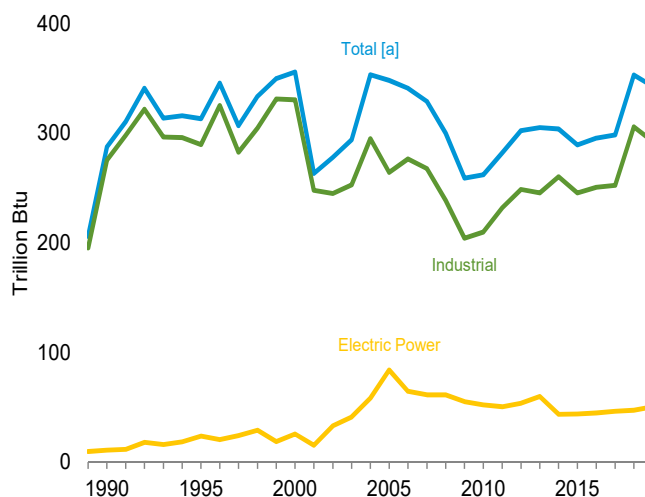
Petroleum by Sector, 1989–2019



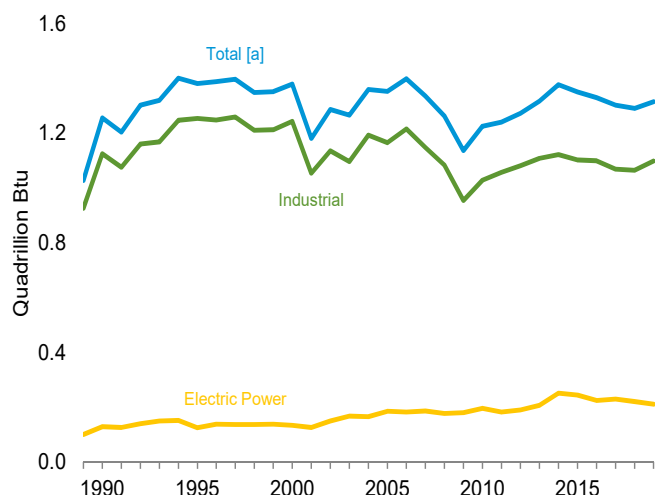
Natural Gas by Sector, 1989–2019



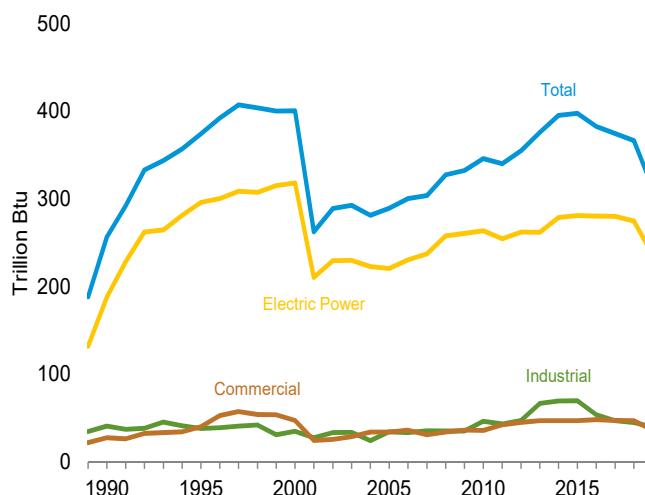
Other Gases [b] by Sector, 1989–2019



Wood by Sector, 1989–2019



Waste by Sector, 1989–2019



[a] Includes commercial sector.

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

Note: Data are for utility-scale facilities.

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

Sources: Tables 7.4a–7.4c.

**Table 7.4a Consumption of Combustible Fuels for Electricity Generation and Useful Thermal Output: Total (All Sectors)** (Sum of Tables 7.4b and 7.4c)

	Coal <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 Total .....	871,741	15,107	16,615	2,908	5,695	63,106	9,410	304	1,378	395	236
2015 Total .....	756,226	12,924	16,136	3,008	5,188	58,009	10,952	290	1,351	398	237
2016 Total .....	693,958	10,278	12,231	2,173	5,352	51,441	11,322	296	1,330	383	238
2017 Total .....	678,578	10,168	11,508	2,033	4,467	46,043	10,677	299	1,303	375	226
2018 January .....	66,279	5,607	3,894	668	466	12,497	913	28	114	33	19
February .....	47,079	707	759	164	382	3,542	801	28	102	31	18
March .....	45,728	782	723	148	327	3,286	873	30	110	33	19
April .....	41,610	825	774	138	354	3,508	816	27	101	31	18
May .....	48,374	998	853	159	281	3,417	963	30	107	31	19
June .....	57,159	946	962	149	413	4,122	1,071	29	107	29	20
July .....	64,895	798	927	184	448	4,151	1,353	30	114	29	19
August .....	64,801	843	1,001	169	429	4,157	1,315	34	112	30	20
September .....	54,975	800	1,030	163	399	3,988	1,151	29	102	27	17
October .....	49,406	831	989	183	306	3,532	1,008	31	104	31	19
November .....	52,868	981	879	167	342	3,739	887	28	105	31	19
December .....	56,853	947	795	284	404	4,048	889	29	113	32	19
Total .....	650,027	15,066	13,584	2,578	4,552	53,988	12,039	353	1,291	367	226
2019 January .....	57,136	1,329	1,139	330	402	4,810	973	30	120	28	20
February .....	46,195	728	668	202	348	3,339	894	29	107	26	17
March .....	45,165	745	698	178	343	3,337	921	31	109	28	18
April .....	34,476	654	690	213	257	2,844	852	28	106	25	18
May .....	41,062	912	820	188	376	3,799	951	27	110	25	19
June .....	45,289	807	878	189	291	3,330	1,112	27	107	25	19
July .....	57,031	804	950	185	393	3,906	1,399	30	112	25	19
August .....	53,511	805	1,035	202	349	3,788	1,415	29	117	26	20
September .....	48,349	748	870	200	350	3,569	1,215	28	106	24	18
October .....	38,495	762	858	215	141	2,539	1,081	28	104	27	18
November .....	42,977	805	798	265	182	2,777	946	28	106	27	18
December .....	41,499	786	857	203	237	3,032	1,030	29	113	28	19
Total .....	551,185	9,884	10,261	2,570	3,671	41,071	12,790	343	1,316	313	223
2020 January .....	37,744	826	828	196	363	3,664	1,065	30	105	28	18
February .....	32,973	673	687	164	222	2,634	1,006	30	98	26	17
March .....	29,843	577	641	231	314	3,019	1,006	30	99	28	18
April .....	24,430	494	595	167	263	2,572	880	24	96	25	18
May .....	27,624	601	648	141	311	2,946	950	25	102	26	18
June .....	37,481	746	778	154	403	3,693	1,167	23	92	23	17
6-Month Total .....	190,095	3,916	4,177	1,052	1,876	18,528	6,073	163	591	156	107
2019 6-Month Total .....	269,323	5,175	4,892	1,299	2,019	21,459	5,703	171	659	157	110
2018 6-Month Total .....	306,228	9,865	7,964	1,428	2,223	30,372	5,437	172	641	187	113

<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>f</sup>	Other Gases <sup>g</sup>	Biomass		Other <sup>j</sup>
		Coal <sup>a</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>	
	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> .....	782,567	16,567	184,915	26	1,008	206,550	3,245	11	129	188	(s)
1995 Total .....	850,230	18,553	90,023	499	2,674	122,447	4,237	24	125	296	2
2000 Total .....	985,821	30,016	138,513	454	3,275	185,358	5,206	25	134	318	1
2001 Total .....	964,433	29,274	159,504	377	3,427	206,291	5,342	15	126	211	113
2002 Total .....	977,507	21,876	104,773	1,267	5,816	156,996	5,672	33	150	230	143
2003 Total .....	1,005,116	27,632	138,279	2,026	5,799	196,932	5,135	41	167	230	140
2004 Total .....	1,016,268	19,107	139,816	2,713	7,372	198,498	5,464	58	165	223	138
2005 Total .....	1,037,485	19,675	139,409	2,685	8,083	202,184	5,869	84	185	221	123
2006 Total .....	1,026,636	12,646	57,345	1,870	7,101	107,365	6,222	65	182	231	125
2007 Total .....	1,045,141	15,327	63,086	2,594	5,685	109,431	6,841	61	186	237	124
2008 Total .....	1,040,580	12,547	38,241	2,670	5,119	79,056	6,668	61	177	258	131
2009 Total .....	933,627	12,035	28,782	2,210	4,611	66,081	6,873	55	180	261	124
2010 Total .....	975,052	13,790	24,503	1,877	4,777	64,055	7,387	52	196	264	124
2011 Total .....	932,484	11,021	14,803	1,658	4,837	51,667	7,574	50	182	255	143
2012 Total .....	823,551	9,080	12,203	1,339	2,974	37,495	9,111	54	190	262	143
2013 Total .....	857,962	9,598	12,283	1,489	4,285	44,794	8,191	60	207	262	139
2014 Total .....	851,602	14,235	15,132	2,208	4,132	52,235	8,146	44	251	279	137
2015 Total .....	738,444	12,193	14,929	2,131	3,907	48,787	9,613	44	244	281	136
2016 Total .....	678,554	9,510	11,242	1,322	4,138	42,763	9,985	45	224	281	139
2017 Total .....	664,993	9,481	10,464	1,375	3,399	38,318	9,266	46	229	280	132
2018 January .....	64,960	5,254	3,672	594	373	11,385	786	4	21	24	12
February .....	45,897	659	653	91	302	2,916	690	4	19	23	11
March .....	44,562	717	647	96	251	2,715	757	4	20	24	12
April .....	40,603	777	707	84	267	2,904	704	4	16	23	11
May .....	47,356	937	790	97	204	2,844	848	4	17	23	11
June .....	56,154	895	875	90	322	3,471	953	4	19	23	12
July .....	63,894	719	877	88	360	3,486	1,224	4	21	23	12
August .....	63,810	771	932	123	348	3,566	1,186	4	20	23	12
September .....	53,987	723	982	128	318	3,422	1,030	4	17	21	10
October .....	48,474	777	875	127	222	2,888	888	4	17	23	11
November .....	51,806	893	752	110	267	3,089	763	4	17	23	11
December .....	55,714	845	683	227	315	3,327	762	4	18	23	11
Total .....	637,217	13,967	12,446	1,855	3,549	46,013	10,590	47	221	275	136
2019 January .....	55,983	1,111	1,039	270	324	4,038	841	4	20	20	12
February .....	45,142	659	597	130	281	2,793	776	5	17	18	11
March .....	44,167	680	620	120	263	2,733	798	5	17	21	12
April .....	33,520	600	625	134	178	2,250	736	4	16	19	11
May .....	40,110	752	751	118	292	3,080	831	4	19	20	13
June .....	44,376	752	815	130	212	2,758	993	4	17	19	12
July .....	56,123	737	907	137	299	3,274	1,273	5	19	20	13
August .....	52,585	735	970	146	271	3,206	1,288	4	21	20	13
September .....	47,461	669	812	141	252	2,882	1,095	4	18	19	12
October .....	37,497	700	805	159	70	2,017	960	4	15	20	12
November .....	41,962	736	722	112	126	2,200	819	4	15	20	12
December .....	40,489	733	781	143	164	2,476	897	4	18	20	12
Total .....	539,415	8,865	9,443	1,739	2,732	33,709	11,307	50	211	236	144
2020 January .....	36,717	770	766	133	281	3,072	930	4	17	21	12
February .....	31,985	630	620	114	171	2,218	883	5	17	19	11
March .....	28,916	530	590	177	270	2,647	881	5	16	21	12
April .....	23,608	456	551	122	232	2,290	764	2	14	19	12
May .....	26,838	547	594	84	249	2,468	832	3	16	19	12
June .....	36,741	688	711	100	323	3,112	1,047	2	15	18	11
6-Month Total .....	184,806	3,621	3,832	729	1,525	15,807	5,336	21	94	116	70
2019 6-Month Total .....	263,298	4,554	4,447	902	1,550	17,653	4,975	25	105	117	71
2018 6-Month Total .....	299,532	9,239	7,345	1,051	1,720	26,234	4,738	24	112	140	68

<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 Total .....	1,063	758	119	47	19,076	10,112	1,145	260	1,122	70	72
2015 Total .....	798	622	116	47	16,984	8,600	1,222	246	1,103	70	73
2016 Total .....	683	404	127	48	14,720	8,273	1,209	251	1,100	54	70
2017 Total .....	610	516	154	48	12,975	7,209	1,257	253	1,069	47	65
2018 January .....	76	186	12	4	1,242	926	115	24	92	5	5
February .....	59	48	11	4	1,122	578	101	24	83	4	5
March .....	57	42	11	4	1,109	530	105	26	90	5	5
April .....	47	36	10	4	960	568	102	23	85	4	5
May .....	39	34	10	4	979	539	105	25	89	4	5
June .....	36	33	11	4	969	618	107	26	87	2	5
July .....	40	55	13	4	962	610	116	26	92	3	5
August .....	42	46	13	4	949	545	116	30	92	3	6
September .....	45	39	11	4	943	528	110	25	85	2	5
October .....	42	36	11	4	891	608	110	27	87	4	5
November .....	47	62	11	4	1,015	588	113	24	88	4	5
December .....	47	65	11	4	1,093	656	115	25	95	5	5
Total .....	577	681	135	47	12,233	7,294	1,314	306	1,065	45	62
2019 January .....	58	78	12	4	1,095	693	121	26	99	4	5
February .....	52	46	11	3	1,000	499	106	24	90	4	4
March .....	54	53	11	3	944	551	111	26	92	4	5
April .....	39	40	10	3	918	553	106	24	90	3	4
May .....	40	138	10	3	912	581	109	23	91	2	4
June .....	31	31	11	3	882	541	108	23	89	3	4
July .....	40	50	12	3	867	583	114	26	92	2	5
August .....	42	45	12	3	885	537	115	24	95	2	5
September .....	42	56	11	3	845	632	110	24	87	2	5
October .....	38	45	11	3	960	477	111	25	88	4	4
November .....	44	55	11	3	971	521	116	24	91	4	5
December .....	46	50	12	3	964	505	122	24	94	4	5
Total .....	526	687	134	36	11,244	6,676	1,349	293	1,099	40	54
2020 January .....	41	59	12	3	986	534	124	26	87	5	4
February .....	48	36	11	3	940	379	112	26	81	4	4
March .....	41	36	11	3	887	336	114	25	82	4	4
April .....	30	23	10	3	792	258	106	22	82	4	4
May .....	32	42	10	3	753	436	107	23	86	4	4
June .....	36	37	10	3	704	544	110	21	76	2	4
6-Month Total .....	227	233	63	17	5,062	2,488	673	143	494	23	24
2019 6-Month Total .....	273	387	65	18	5,751	3,420	662	146	551	21	26
2018 6-Month Total .....	314	378	64	24	6,381	3,759	635	149	526	24	31

<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).

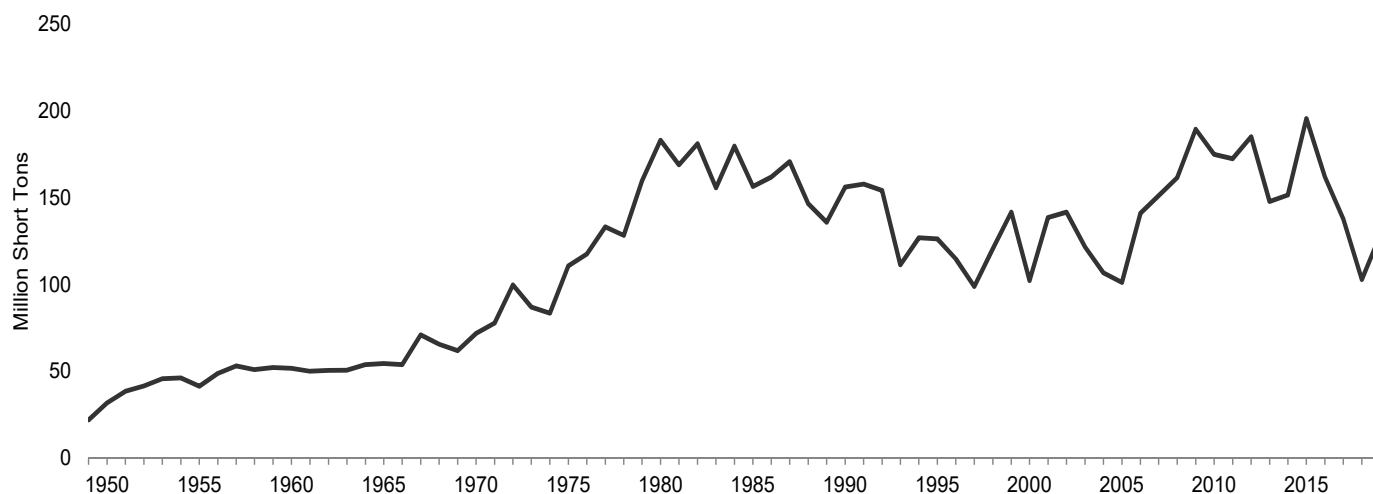
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is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

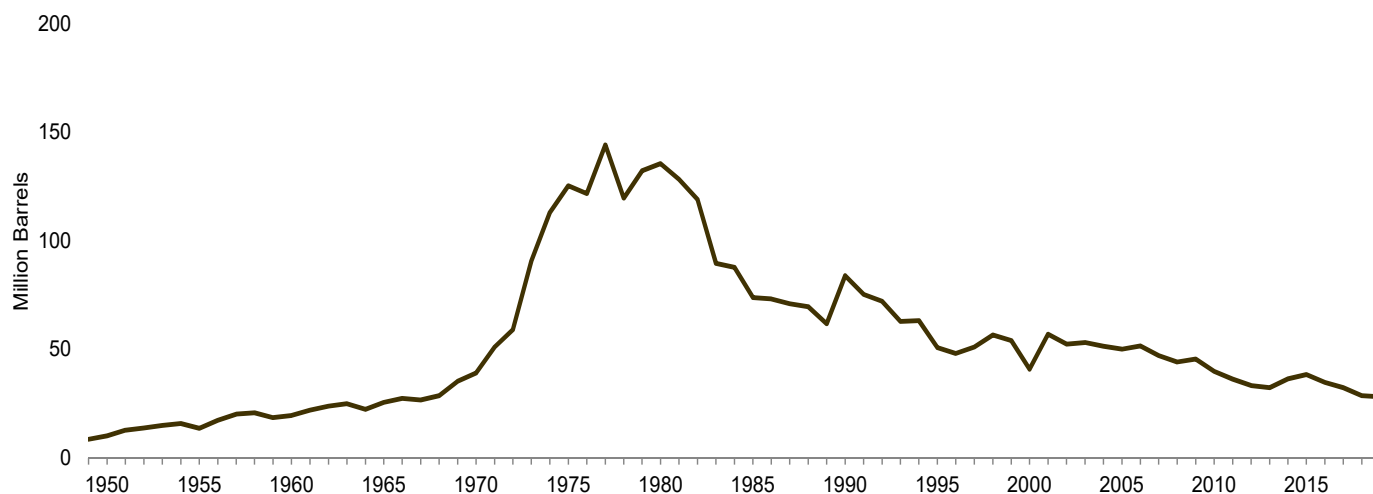
Sources: • **1989–1997:** U.S. Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906,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

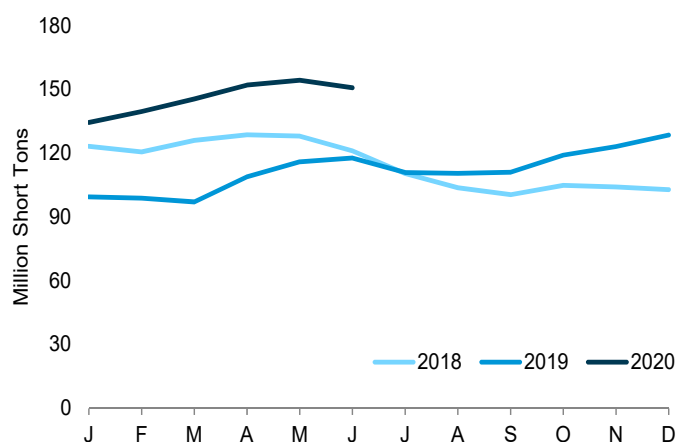
Coal, 1949–2019



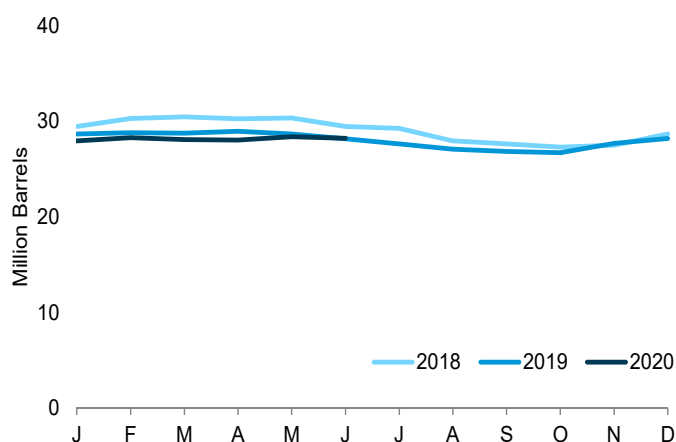
Total Petroleum, 1949–2019



Coal, Monthly



Total Petroleum, Monthly



Note: Data are for utility-sale 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	1,634	739	44,178
2009 Year .....	189,467	17,886	19,068	1,651	1,394	45,575
2010 Year .....	174,917	16,758	16,629	1,454	1,019	39,936
2011 Year .....	172,387	16,649	15,491	1,603	508	36,282
2012 Year .....	185,116	16,433	12,999	1,430	495	33,336
2013 Year .....	147,884	16,068	12,926	1,393	390	32,336
2014 Year .....	151,548	18,309	12,764	1,249	827	36,459
2015 Year .....	195,548	17,955	12,566	1,173	1,340	38,396
2016 Year .....	162,009	17,855	11,789	949	845	34,818
2017 Year .....	137,687	16,342	10,930	816	864	32,407
2018 January .....	123,235	15,489	9,763	601	720	29,454
February .....	120,526	15,844	10,320	667	692	30,293
March .....	126,008	15,809	10,286	668	736	30,446
April .....	128,571	15,742	10,194	672	731	30,262
May .....	127,982	15,911	10,127	756	709	30,337
June .....	121,041	15,664	10,146	684	591	29,448
July .....	110,348	15,650	9,583	679	668	29,249
August .....	103,744	15,210	8,923	682	625	27,939
September .....	100,384	15,238	8,671	686	608	27,634
October .....	104,855	15,297	8,665	630	541	27,297
November .....	104,075	15,581	8,499	640	557	27,504
December .....	102,793	16,436	8,785	756	539	28,674
2019 January .....	99,378	16,571	8,637	818	528	28,664
February .....	98,835	16,519	8,955	796	506	28,799
March .....	97,102	16,502	8,991	773	498	28,759
April .....	108,852	16,640	8,983	759	510	28,933
May .....	115,888	16,712	8,990	751	445	28,676
June .....	117,710	16,609	8,866	742	389	28,161
July .....	110,933	16,504	8,614	732	355	27,626
August .....	110,560	16,284	8,162	714	381	27,066
September .....	110,952	16,318	8,350	706	293	26,840
October .....	119,045	16,364	8,246	685	283	26,712
November .....	123,033	16,202	8,655	692	425	27,674
December .....	128,497	16,628	8,657	690	443	28,192
2020 January .....	134,402	16,462	8,219	659	521	27,943
February .....	139,558	16,297	8,261	644	615	28,277
March .....	145,451	16,509	8,390	493	537	28,077
April .....	151,998	16,275	8,587	488	537	28,036
May .....	<sup>R</sup> 154,340	16,725	8,553	482	525	28,385
June .....	150,728	16,710	8,652	478	476	28,218

<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.

<sup>R</sup>=Revised. NA=Not available.

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

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

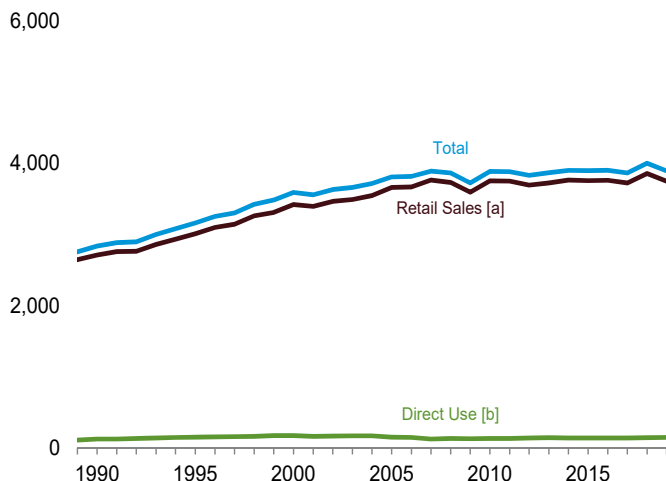
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#electricity> (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

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

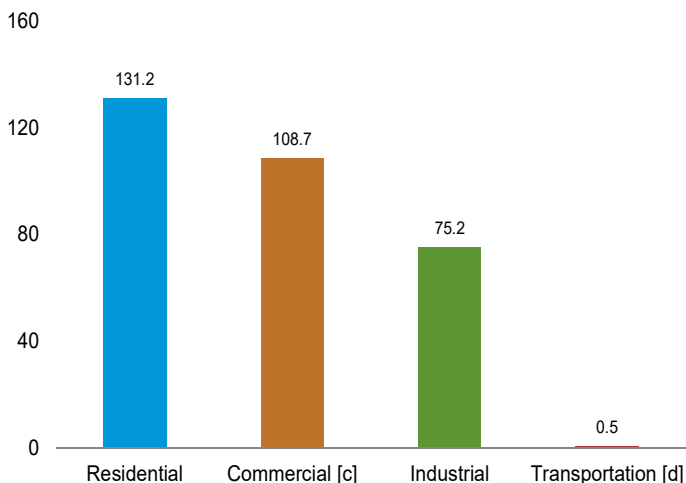
**Figure 7.6 Electricity End Use**

(Billion Kilowatthours)

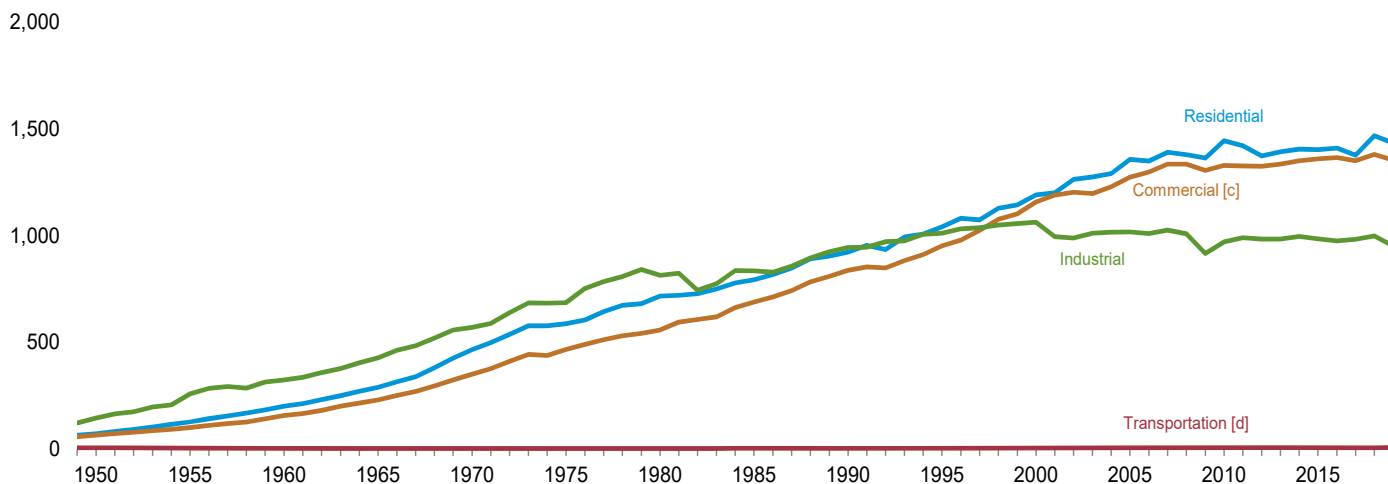
Electricity End Use Overview, 1989–2019



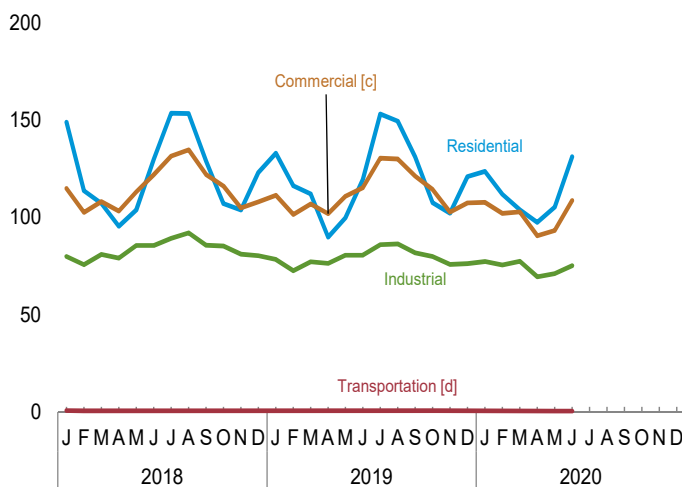
Retail Sales [a] by Sector, June 2020



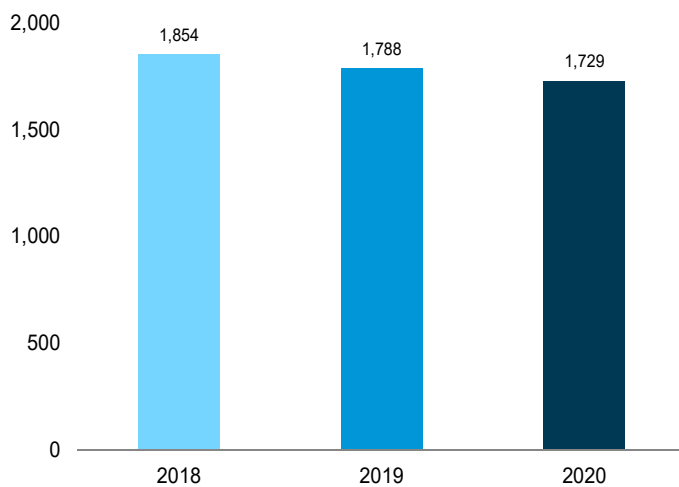
Retail Sales [a] by Sector, 1949–2019



Retail Sales [a] by Sector, Monthly



Retail Sales [a] Total, January–June



[a] Electricity retail sales to ultimate customers reported by utilities and other energy service providers.

[b] See “Direct Use” in Glossary.

[c] Commercial sector, including public street and highway lighting, inter-

departmental sales, and other sales to public authorities.

[d] Transportation sector, including sales to railroads and railways.

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

Source: Table 7.6.



**Table 7.6 Electricity End Use**  
(Million Kilowatthours)

	Retail Sales <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	<sup>E</sup> 65,971	146,479	<sup>E</sup> 6,793	291,443	NA	291,443
1955 Total .....	128,401	<sup>E</sup> 102,547	259,974	<sup>E</sup> 5,826	496,748	NA	496,748
1960 Total .....	201,463	<sup>E</sup> 159,144	324,402	<sup>E</sup> 3,066	688,075	NA	688,075
1965 Total .....	291,013	<sup>E</sup> 231,126	428,727	<sup>E</sup> 2,923	953,789	NA	953,789
1970 Total .....	466,291	<sup>E</sup> 352,041	570,854	<sup>E</sup> 3,115	1,392,300	NA	1,392,300
1975 Total .....	588,140	<sup>E</sup> 468,296	687,680	<sup>E</sup> 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	917,221	7,712	3,754,841	131,910	3,886,752
2011 Total .....	1,422,801	1,328,057	991,316	7,672	3,749,846	132,754	3,882,600
2012 Total .....	1,374,515	1,327,101	985,714	7,320	3,694,650	137,657	3,832,306
2013 Total .....	1,394,812	1,337,079	985,352	7,625	3,724,868	143,462	3,868,330
2014 Total .....	1,407,208	1,352,158	997,576	7,758	3,764,700	138,574	3,903,274
2015 Total .....	1,404,096	1,360,752	986,508	7,637	3,758,992	141,168	3,900,160
2016 Total .....	1,411,058	1,367,191	976,715	7,497	3,762,462	139,844	3,902,306
2017 Total .....	1,378,648	1,352,888	984,298	7,523	3,723,356	141,114	3,864,470
2018 January .....	148,917	114,925	79,890	745	344,478	<sup>E</sup> 12,405	356,882
February .....	113,751	102,685	75,661	634	292,732	<sup>E</sup> 11,036	303,768
March .....	107,218	108,108	81,053	620	296,999	<sup>E</sup> 11,521	308,521
April .....	95,454	103,331	79,083	599	278,468	<sup>E</sup> 11,023	289,491
May .....	103,848	113,175	85,638	587	303,248	<sup>E</sup> 11,740	314,988
June .....	129,913	122,011	85,536	623	338,083	<sup>E</sup> 12,027	350,110
July .....	153,566	131,522	89,301	634	375,023	<sup>E</sup> 12,994	388,017
August .....	153,496	134,848	92,106	680	381,131	<sup>E</sup> 13,079	394,209
September .....	128,910	122,033	85,679	640	337,263	<sup>E</sup> 12,008	349,271
October .....	107,049	116,133	85,301	631	309,114	<sup>E</sup> 11,865	320,979
November .....	103,790	104,983	81,118	616	290,507	<sup>E</sup> 11,977	302,484
December .....	123,180	107,998	80,306	655	312,140	<sup>E</sup> 12,438	324,578
<b>Total .....</b>	<b>1,469,093</b>	<b>1,381,755</b>	<b>1,000,673</b>	<b>7,665</b>	<b>3,859,185</b>	<b>144,114</b>	<b>4,003,299</b>
2019 January .....	133,011	111,433	78,390	673	323,507	<sup>E</sup> 12,772	336,279
February .....	116,249	101,547	72,568	702	291,066	<sup>E</sup> 11,258	302,323
March .....	112,140	106,889	77,198	689	296,916	<sup>E</sup> 12,026	308,942
April .....	89,864	101,960	76,413	614	268,851	<sup>E</sup> 11,423	280,274
May .....	99,810	110,889	80,657	611	291,967	<sup>E</sup> 11,664	303,631
June .....	119,519	115,338	80,618	612	316,087	<sup>E</sup> 11,783	327,870
July .....	153,141	130,429	86,057	646	370,272	<sup>E</sup> 12,885	383,157
August .....	149,549	130,101	86,345	657	366,651	<sup>E</sup> 12,916	379,567
September .....	131,123	121,318	81,767	681	334,890	<sup>E</sup> 12,109	346,999
October .....	107,636	114,372	79,939	546	302,493	<sup>E</sup> 11,949	314,442
November .....	102,167	102,810	75,869	618	281,464	<sup>E</sup> 12,445	293,909
December .....	120,938	107,459	76,327	650	305,373	<sup>E</sup> 12,827	318,200
<b>Total .....</b>	<b>1,435,147</b>	<b>1,354,545</b>	<b>952,149</b>	<b>7,697</b>	<b>3,749,538</b>	<b>146,057</b>	<b>3,895,595</b>
2020 January .....	123,731	107,715	77,384	714	309,544	<sup>E</sup> 13,035	322,578
February .....	111,963	102,038	75,626	621	290,248	<sup>E</sup> 11,965	302,213
March .....	103,973	102,933	77,509	604	285,019	<sup>E</sup> 12,044	297,063
April .....	97,440	90,587	69,480	451	257,958	<sup>E</sup> 10,954	268,912
May .....	105,345	93,332	71,195	452	270,325	<sup>E</sup> 11,137	281,462
June .....	131,248	108,654	75,225	481	315,608	<sup>E</sup> 11,530	327,138
<b>6-Month Total .....</b>	<b>673,699</b>	<b>605,260</b>	<b>446,418</b>	<b>3,324</b>	<b>1,728,701</b>	<b>70,664</b>	<b>1,799,365</b>
2018 6-Month Total .....	670,593	648,056	465,844	3,900	1,788,394	<sup>E</sup> 70,925	1,859,320
2017 6-Month Total .....	699,102	664,237	486,861	3,808	1,854,008	<sup>E</sup> 69,752	1,923,761

<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.

**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).

**Note 3. Electricity Forecast Values.** Data values preceded by "F" in this section are forecast values. They are derived from EIA's Short-Term Integrated Forecasting System (STIFS). STIFS is driven primarily by data and assumptions about key macroeconomic variables, energy prices, and weather. The electricity forecast relies on additional variables such as alternative fuel prices (natural gas and oil) and power generation by sources other than fossil fuels, including nuclear, renewables, and hydroelectric power. Each month, EIA staff review the model output and make adjustments, if appropriate, based on their knowledge of developments in the electricity industry.

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

## Table 7.1 Sources

### *Net Generation, Electric Power Sector*

1949 forward: Table 7.2b.

### *Net Generation, Commercial and Industrial Sectors*

1949 forward: Table 7.2c.

### *Trade*

1949–September 1977: Unpublished Federal Power Commission data.

October 1977–1980: Unpublished Economic Regulatory Administration (ERA) data.

1981: U.S. Department of Energy (DOE), Office of Energy Emergency Operations, "Report on Electric Energy Exchanges with Canada and Mexico for Calendar Year 1981," April 1982 (revised June 1982).

1982 and 1983: DOE, ERA, *Electricity Exchanges Across International Borders*.

1984–1986: DOE, ERA, *Electricity Transactions Across International Borders*.

1987 and 1988: DOE, ERA, Form ERA-781R, "Annual Report of International Electrical Export/Import Data."

1989: DOE, Fossil Energy, Form FE-781R, "Annual Report of International Electrical Export/Import Data."

1990–2000: National Energy Board of Canada; and DOE, Office of Electricity Delivery and Energy Reliability, Form FE-781R, "Annual Report of International Electrical Export/Import Data."

2001–May 2011: National Energy Board of Canada; DOE, Office of Electricity Delivery and Energy Reliability, Form OE-781R, "Monthly Electricity Imports and Exports Report," and predecessor form; and California Independent System Operator.

June 2011–2015: National Energy Board of Canada; California Independent System Operator; and EIA estimates for Texas transfers.

2016 forward: EIA, Form EIA-111, "Quarterly Electricity Imports and Exports Report"; and for forecast values, EIA Short-Term Integrated Forecasting System (STIFS).

### ***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)* August 2020, 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, August 2020, 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 August 2020, 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."

2001–2018: EIA, *Electric Power Annual* 2018, October 2019, Table 2.2.

2019: Sum of monthly estimates.

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

1989 forward: Annual shares are calculated as annual direct use divided by annual commercial and industrial net generation (on Table 7.1). Then monthly direct use estimates are calculated as the annual share multiplied by the monthly commercial and industrial net generation values. For 2019, the 2018 annual share is used.

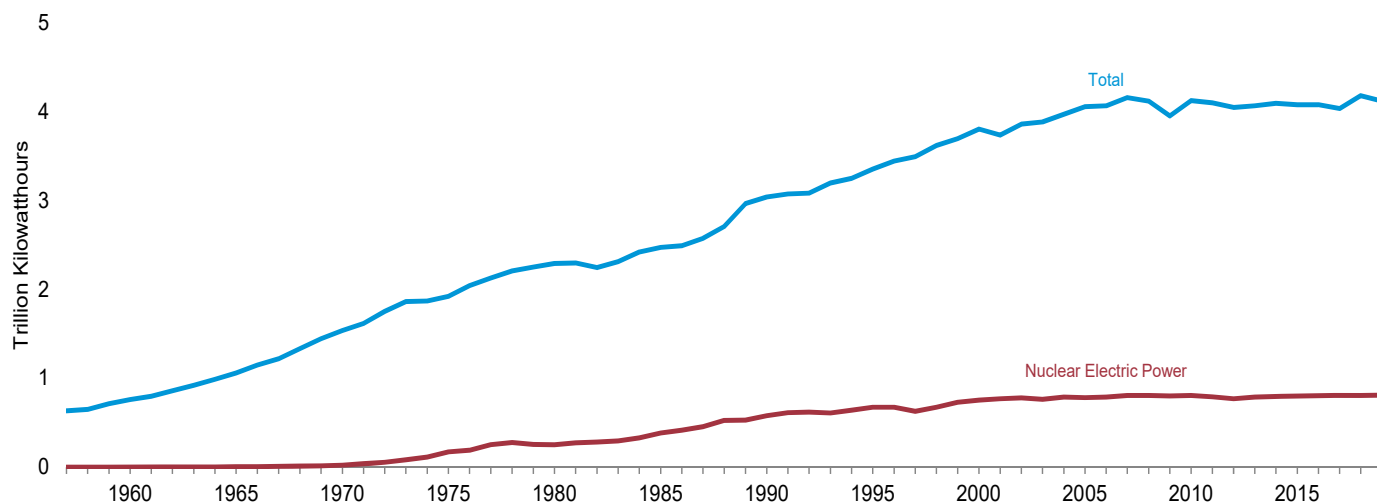
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## 8. Nuclear Energy

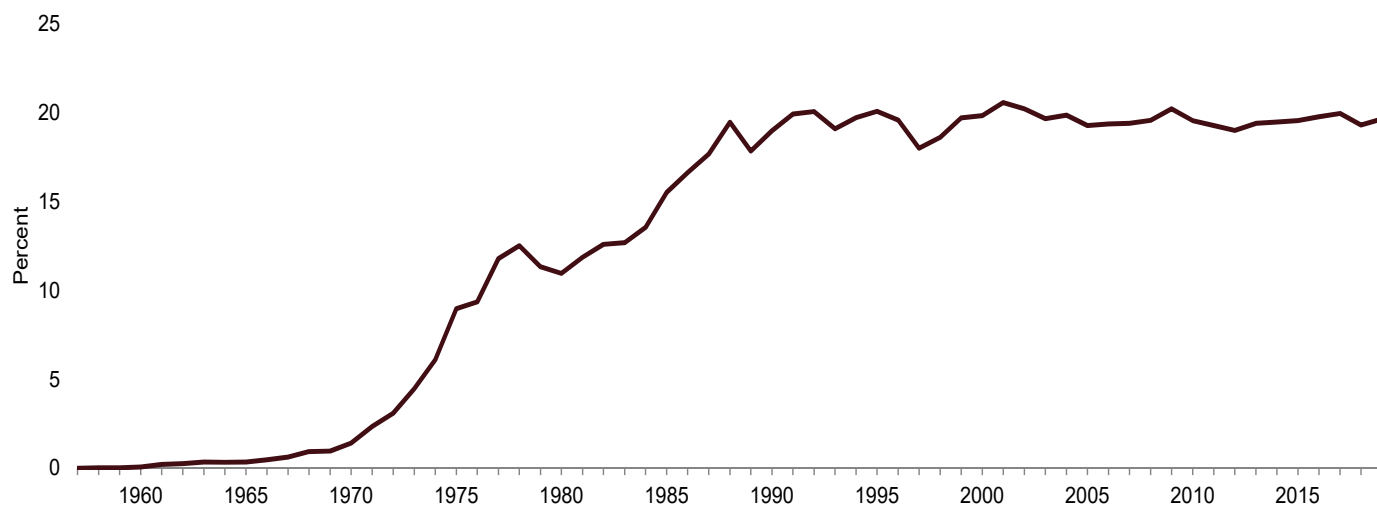
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**Figure 8.1 Nuclear Energy Overview**

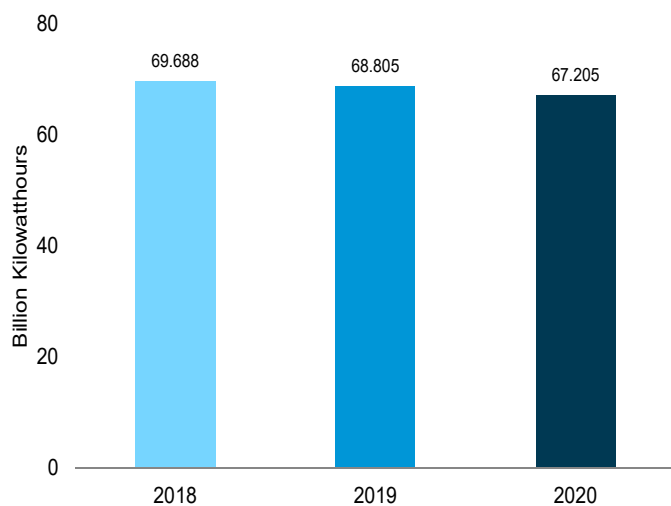
Electricity Net Generation, 1957–2019



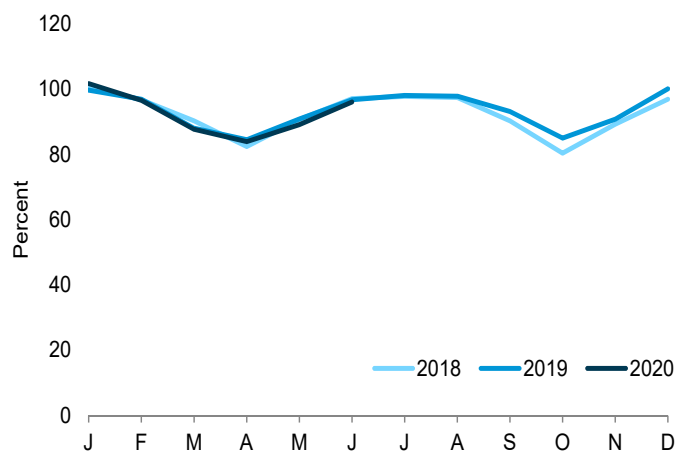
Nuclear Share of Electricity Net Generation, 1957–2019



Nuclear Electricity Net Generation—June



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	
<b>1957 Total</b> .....	<b>1</b>	<b>0.055</b>	<b>10</b>	<b>(s)</b>	<b>NA</b>
<b>1960 Total</b> .....	<b>3</b>	<b>.411</b>	<b>518</b>	<b>.1</b>	<b>NA</b>
<b>1965 Total</b> .....	<b>13</b>	<b>.793</b>	<b>3,657</b>	<b>.3</b>	<b>NA</b>
<b>1970 Total</b> .....	<b>20</b>	<b>7.004</b>	<b>21,804</b>	<b>1.4</b>	<b>NA</b>
<b>1975 Total</b> .....	<b>57</b>	<b>37.267</b>	<b>172,505</b>	<b>9.0</b>	<b>55.9</b>
<b>1980 Total</b> .....	<b>71</b>	<b>51.810</b>	<b>251,116</b>	<b>11.0</b>	<b>56.3</b>
<b>1985 Total</b> .....	<b>96</b>	<b>79.397</b>	<b>383,691</b>	<b>15.5</b>	<b>58.0</b>
<b>1990 Total</b> .....	<b>112</b>	<b>99.624</b>	<b>576,862</b>	<b>19.0</b>	<b>66.0</b>
<b>1995 Total</b> .....	<b>109</b>	<b>99.515</b>	<b>673,402</b>	<b>20.1</b>	<b>77.4</b>
<b>2000 Total</b> .....	<b>104</b>	<b>97.860</b>	<b>753,893</b>	<b>19.8</b>	<b>88.1</b>
<b>2001 Total</b> .....	<b>104</b>	<b>98.159</b>	<b>768,826</b>	<b>20.6</b>	<b>89.4</b>
<b>2002 Total</b> .....	<b>104</b>	<b>98.657</b>	<b>780,064</b>	<b>20.2</b>	<b>90.3</b>
<b>2003 Total</b> .....	<b>104</b>	<b>99.209</b>	<b>763,733</b>	<b>19.7</b>	<b>87.9</b>
<b>2004 Total</b> .....	<b>104</b>	<b>99.628</b>	<b>788,528</b>	<b>19.9</b>	<b>90.1</b>
<b>2005 Total</b> .....	<b>104</b>	<b>99.988</b>	<b>781,986</b>	<b>19.3</b>	<b>89.3</b>
<b>2006 Total</b> .....	<b>104</b>	<b>100.334</b>	<b>787,219</b>	<b>19.4</b>	<b>89.6</b>
<b>2007 Total</b> .....	<b>104</b>	<b>100.266</b>	<b>806,425</b>	<b>19.4</b>	<b>91.8</b>
<b>2008 Total</b> .....	<b>104</b>	<b>100.755</b>	<b>806,208</b>	<b>19.6</b>	<sup>d</sup> <b>91.1</b>
<b>2009 Total</b> .....	<b>104</b>	<b>101.004</b>	<b>798,855</b>	<b>20.2</b>	<b>90.3</b>
<b>2010 Total</b> .....	<b>104</b>	<b>101.167</b>	<b>806,968</b>	<b>19.6</b>	<b>91.1</b>
<b>2011 Total</b> .....	<b>104</b>	<sup>c</sup> <b>101.419</b>	<b>790,204</b>	<b>19.3</b>	<b>89.1</b>
<b>2012 Total</b> .....	<b>104</b>	<b>101.885</b>	<b>769,331</b>	<b>19.0</b>	<b>86.1</b>
<b>2013 Total</b> .....	<b>100</b>	<b>99.240</b>	<b>789,016</b>	<b>19.4</b>	<b>89.9</b>
<b>2014 Total</b> .....	<b>99</b>	<b>98.569</b>	<b>797,166</b>	<b>19.5</b>	<b>91.7</b>
<b>2015 Total</b> .....	<b>99</b>	<b>98.672</b>	<b>797,178</b>	<b>19.6</b>	<b>92.3</b>
<b>2016 Total</b> .....	<b>99</b>	<b>99.565</b>	<b>805,694</b>	<b>19.8</b>	<b>92.3</b>
<b>2017 Total</b> .....	<b>99</b>	<b>99.629</b>	<b>804,950</b>	<b>20.0</b>	<b>92.3</b>
<b>2018 January</b> .....	<b>99</b>	<b>99.731</b>	<b>74,649</b>	<b>20.0</b>	<b>100.6</b>
February .....	<b>99</b>	<b>99.731</b>	<b>64,790</b>	<b>21.1</b>	<b>96.7</b>
March .....	<b>99</b>	<b>99.731</b>	<b>67,033</b>	<b>20.8</b>	<b>90.3</b>
April .....	<b>99</b>	<b>99.731</b>	<b>59,133</b>	<b>19.7</b>	<b>82.4</b>
May .....	<b>99</b>	<b>99.731</b>	<b>67,320</b>	<b>19.9</b>	<b>90.7</b>
June .....	<b>99</b>	<b>99.731</b>	<b>69,688</b>	<b>18.7</b>	<b>97.1</b>
July .....	<b>99</b>	<b>99.731</b>	<b>72,456</b>	<b>17.6</b>	<b>97.7</b>
August .....	<b>99</b>	<b>99.731</b>	<b>72,282</b>	<b>17.7</b>	<b>97.4</b>
September .....	<b>98</b>	<b>99.278</b>	<b>64,725</b>	<b>18.2</b>	<b>90.3</b>
October .....	<b>98</b>	<b>99.278</b>	<b>59,397</b>	<b>18.3</b>	<b>80.4</b>
November .....	<b>98</b>	<b>99.433</b>	<b>63,954</b>	<b>19.8</b>	<b>89.3</b>
December .....	<b>98</b>	<b>99.433</b>	<b>71,657</b>	<b>20.9</b>	<b>96.9</b>
<b>Total</b> .....	<b>98</b>	<b>99.433</b>	<b>807,084</b>	<b>19.3</b>	<b>92.5</b>
<b>2019 January</b> .....	<b>98</b>	<sup>E</sup> <b>99.392</b>	<b>73,701</b>	<b>20.6</b>	<sup>E</sup> <b>99.7</b>
February .....	<b>98</b>	<sup>E</sup> <b>99.392</b>	<b>64,715</b>	<b>20.6</b>	<sup>E</sup> <b>96.9</b>
March .....	<b>98</b>	<sup>E</sup> <b>99.392</b>	<b>65,080</b>	<b>20.1</b>	<sup>E</sup> <b>88.0</b>
April .....	<b>98</b>	<sup>E</sup> <b>99.547</b>	<b>60,581</b>	<b>20.6</b>	<sup>E</sup> <b>84.5</b>
May .....	<b>97</b>	<sup>E</sup> <b>98.873</b>	<b>67,124</b>	<b>20.4</b>	<sup>E</sup> <b>90.9</b>
June .....	<b>97</b>	<sup>E</sup> <b>98.873</b>	<b>68,805</b>	<b>19.6</b>	<sup>E</sup> <b>96.7</b>
July .....	<b>97</b>	<sup>E</sup> <b>98.873</b>	<b>72,199</b>	<b>17.5</b>	<sup>E</sup> <b>98.1</b>
August .....	<b>97</b>	<sup>E</sup> <b>98.873</b>	<b>71,911</b>	<b>17.9</b>	<sup>E</sup> <b>97.8</b>
September .....	<b>96</b>	<sup>E</sup> <b>98.070</b>	<b>66,064</b>	<b>18.4</b>	<sup>E</sup> <b>93.1</b>
October .....	<b>96</b>	<sup>E</sup> <b>98.070</b>	<b>62,033</b>	<b>19.3</b>	<sup>E</sup> <b>85.0</b>
November .....	<b>96</b>	<sup>E</sup> <b>98.070</b>	<b>64,125</b>	<b>20.2</b>	<sup>E</sup> <b>90.8</b>
December .....	<b>96</b>	<sup>E</sup> <b>98.070</b>	<b>73,074</b>	<b>21.7</b>	<sup>E</sup> <b>100.1</b>
<b>Total</b> .....	<b>96</b>	<sup>E</sup> <b>98.070</b>	<b>809,409</b>	<b>19.7</b>	<sup>E</sup> <b>93.5</b>
<b>2020 January</b> .....	<b>96</b>	<sup>E</sup> <b>98.042</b>	<b>74,204</b>	<b>21.9</b>	<sup>E</sup> <b>101.7</b>
February .....	<b>96</b>	<sup>E</sup> <b>98.119</b>	<b>65,950</b>	<b>20.8</b>	<sup>E</sup> <b>96.6</b>
March .....	<b>96</b>	<sup>E</sup> <b>98.119</b>	<b>63,997</b>	<b>20.9</b>	<sup>E</sup> <b>87.7</b>
April .....	<b>95</b>	<sup>E</sup> <b>97.103</b>	<b>59,170</b>	<b>21.5</b>	<sup>E</sup> <b>83.9</b>
May .....	<b>95</b>	<sup>E</sup> <b>97.103</b>	<b>64,338</b>	<b>21.2</b>	<sup>E</sup> <b>89.1</b>
June .....	<b>95</b>	<sup>E</sup> <b>97.121</b>	<b>67,205</b>	<b>19.0</b>	<sup>E</sup> <b>96.1</b>
<b>6-Month Total</b> .....	<b>95</b>	<sup>E</sup> <b>97.121</b>	<b>394,865</b>	<b>20.9</b>	<sup>E</sup> <b>92.5</b>
<b>2019 6-Month Total</b> .....	<b>97</b>	<sup>E</sup> <b>98.873</b>	<b>400,005</b>	<b>20.3</b>	<sup>E</sup> <b>92.7</b>
<b>2018 6-Month Total</b> .....	<b>99</b>	<b>99.731</b>	<b>402,613</b>	<b>20.0</b>	<b>92.9</b>

<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.

E=Estimate. NA=Not available. (s)=Less than 0.05%.

Notes: • For a discussion of nuclear reactor unit coverage, see Note 1, "Operable Nuclear Reactors," at end of section. • Nuclear electricity net generation totals may not equal sum of components due to independent rounding.

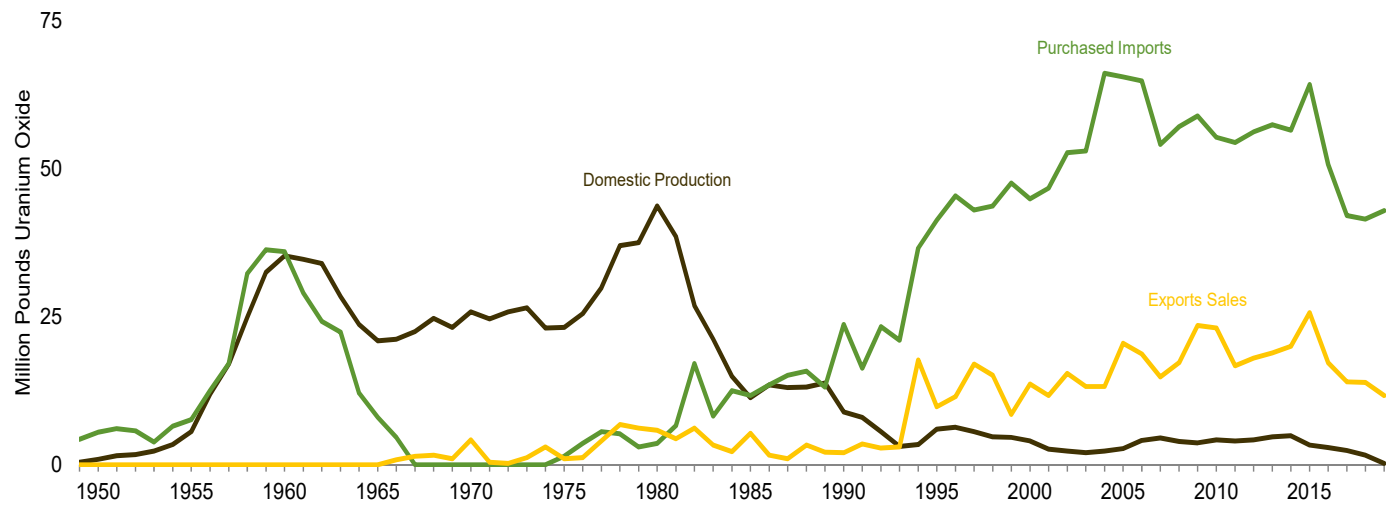
• Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#nuclear> (Excel and CSV files) for all available annual data beginning in 1957 and monthly data beginning in 1973.

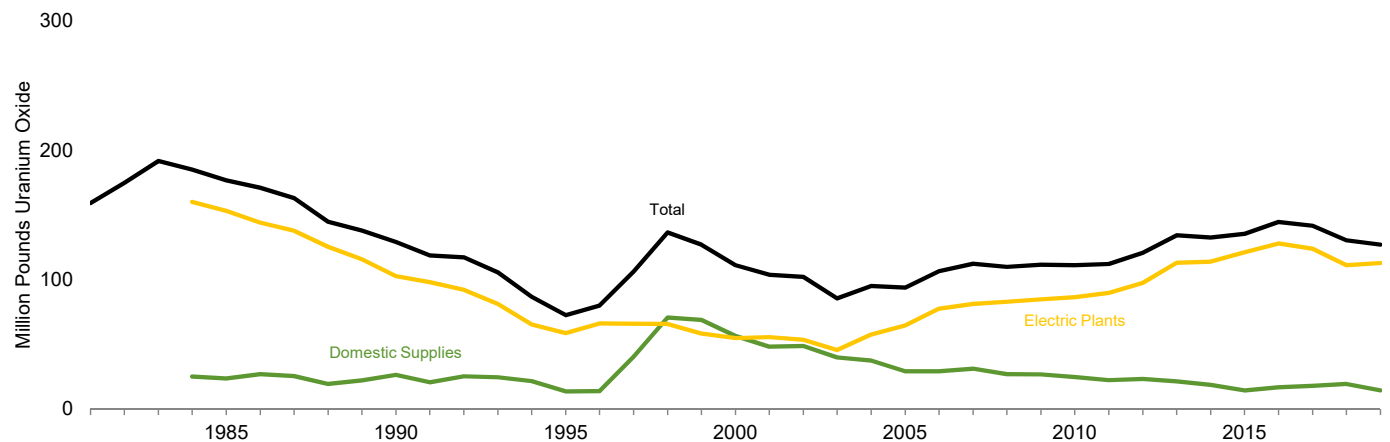
Sources: See end of section.

**Figure 8.2 Uranium Overview**

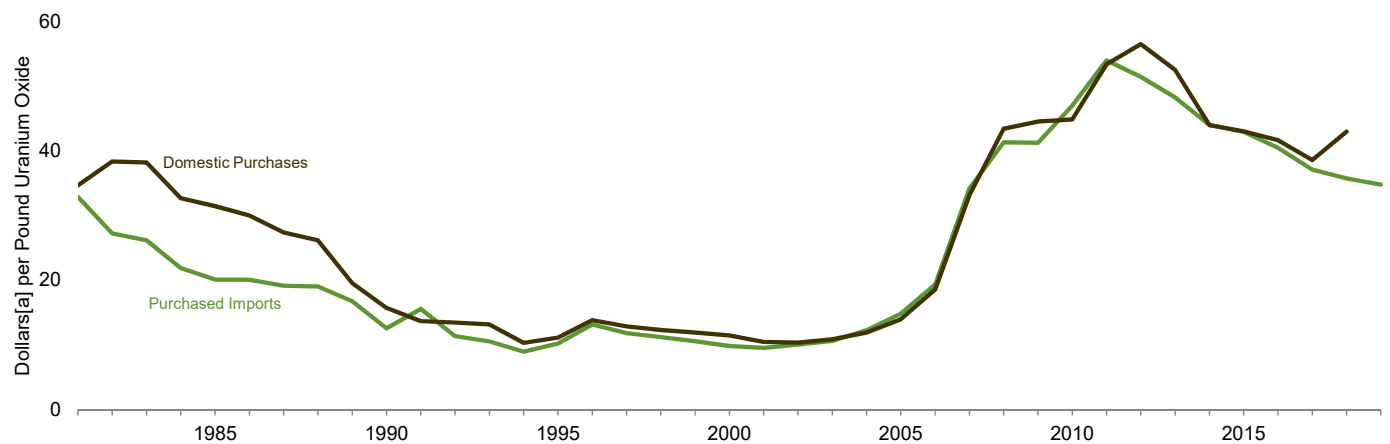
Production and Trade, 1949–2019



Inventories, End of Year 1981–2019



Average Prices, 1981–2019



[a] Prices are not adjusted for inflation. See “Nominal Dollars” in Glossary.  
Note: See “Uranium Oxide” in Glossary.

Web Page: <http://www.eia.gov/totalenergy/data/monthly/#nuclear>.  
Source: Table 8.2.

**Table 8.2 Uranium Overview**

	Domestic Concentrate Production <sup>a</sup>	Purchased Imports <sup>b</sup>	Export <sup>b</sup> Sales	Electric Plant Purchases From Domestic Suppliers	Loaded Into U.S. Nuclear Reactors <sup>c</sup>	Inventories			Average Price	
						Domestic Suppliers	Electric Plants	Total	Purchased Imports	Domestic Purchases
						Million Pounds Uranium Oxide			Dollars <sup>d</sup> per Pound Uranium Oxide	
1950 .....	0.92	5.5	0.0	NA	NA	NA	NA	NA	NA	NA
1955 .....	5.56	7.6	.0	NA	NA	NA	NA	NA	NA	NA
1960 .....	35.28	36.0	.0	NA	NA	NA	NA	NA	NA	NA
1965 .....	20.88	8.0	.0	NA	NA	NA	NA	NA	NA	NA
1970 .....	25.81	.0	4.2	NA	NA	NA	NA	NA	—	NA
1975 .....	23.20	1.4	1.0	NA	NA	NA	NA	NA	NA	NA
1980 .....	43.70	3.6	5.8	NA	NA	NA	NA	NA	NA	NA
1981 .....	38.47	6.6	4.4	32.6	NA	NA	NA	159.2	32.90	34.65
1982 .....	26.87	17.1	6.2	27.1	NA	NA	NA	174.8	27.23	38.37
1983 .....	21.16	8.2	3.3	24.2	NA	NA	NA	191.8	26.16	38.21
1984 .....	14.88	12.5	2.2	22.5	NA	25.0	160.2	185.2	21.86	32.65
1985 .....	11.31	11.7	5.3	21.7	NA	23.7	153.2	176.9	20.08	31.43
1986 .....	13.51	13.5	1.6	18.9	NA	27.0	144.1	171.1	20.07	30.01
1987 .....	12.99	15.1	1.0	20.8	NA	25.4	137.8	163.2	19.14	27.37
1988 .....	13.13	15.8	3.3	17.6	NA	19.3	125.5	144.8	19.03	26.15
1989 .....	13.84	13.1	2.1	18.4	NA	22.2	115.8	138.1	16.75	19.56
1990 .....	8.89	23.7	2.0	20.5	NA	26.4	102.7	129.1	12.55	15.70
1991 .....	7.95	16.3	3.5	26.8	34.6	20.7	98.0	118.7	15.55	13.66
1992 .....	5.65	23.3	2.8	23.4	43.0	25.2	92.1	117.3	11.34	13.45
1993 .....	3.06	21.0	3.0	15.5	45.1	24.5	81.2	105.7	10.53	13.14
1994 .....	3.35	36.6	17.7	22.7	40.4	21.5	65.4	86.9	8.95	10.30
1995 .....	6.04	41.3	9.8	22.3	51.1	13.7	58.7	72.5	10.20	11.11
1996 .....	6.32	45.4	11.5	23.7	46.2	13.9	66.1	80.0	13.15	13.81
1997 .....	5.64	43.0	17.0	19.4	48.2	40.4	65.9	106.2	11.81	12.87
1998 .....	4.70	43.7	15.1	21.6	38.2	70.7	65.8	136.5	11.19	12.31
1999 .....	4.61	47.6	8.5	21.4	58.8	68.8	58.3	127.1	10.55	11.88
2000 .....	3.98	44.9	13.6	24.3	51.5	56.5	54.8	111.3	9.84	11.45
2001 .....	2.64	46.7	11.7	27.5	52.7	48.1	55.6	103.8	9.51	10.45
2002 .....	e,E 2.34	52.7	15.4	22.7	57.2	48.7	53.5	102.1	10.05	10.35
2003 .....	e,E 2.00	53.0	13.2	21.7	62.3	39.9	45.6	85.5	10.59	10.84
2004 .....	2.28	66.1	13.2	28.2	50.1	37.5	57.7	95.2	12.25	11.91
2005 .....	2.69	65.5	20.5	27.3	58.3	29.1	64.7	93.8	14.83	13.98
2006 .....	4.11	64.8	18.7	27.9	51.7	29.1	77.5	106.6	19.31	18.54
2007 .....	4.53	54.1	14.8	18.5	45.5	31.2	81.2	112.4	34.18	33.13
2008 .....	3.90	57.1	17.2	20.4	51.3	27.0	83.0	110.0	41.30	43.43
2009 .....	3.71	58.9	23.5	17.6	49.4	26.8	84.8	111.5	41.23	44.53
2010 .....	4.23	55.3	23.1	16.2	44.3	24.7	86.5	111.3	47.01	44.88
2011 .....	3.99	54.4	16.7	19.8	50.9	22.3	89.8	112.1	54.00	53.41
2012 .....	4.15	56.2	18.0	21.5	49.5	23.3	97.6	120.9	51.44	56.51
2013 .....	4.66	57.4	18.9	23.3	42.6	21.3	113.1	134.4	48.27	52.51
2014 .....	4.89	56.5	20.0	20.5	50.5	18.7	114.0	132.7	44.03	43.99
2015 .....	3.34	64.2	25.7	19.6	47.4	14.3	121.1	135.5	42.95	43.03
2016 .....	2.92	50.7	17.2	18.8	41.7	16.7	128.0	144.6	40.45	41.64
2017 .....	2.44	42.1	14.0	14.0	45.5	17.8	123.9	141.7	37.09	38.57
2018 .....	1.65	41.5	13.9	11.1	50.4	19.3	111.2	130.5	35.73	42.98
2019 .....	P 1.17	42.9	11.7	W	P 43.2	P 14.3	P 112.8	P 127.1	34.77	W

<sup>a</sup> See "Uranium Concentrate" in Glossary.

<sup>b</sup> Import quantities through 1970 are reported for fiscal years. Prior to 1968, the Atomic Energy Commission was the sole purchaser of all imported uranium oxide. Trade data prior to 1982 were for transactions conducted by uranium suppliers only. For 1982 forward, transactions by uranium buyers (consumers) have been included. Buyer imports and exports prior to 1982 are believed to be small.

<sup>c</sup> Does not include any fuel rods removed from reactors and later reloaded.

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

<sup>e</sup> Value has been rounded to avoid disclosure of individual company data.

P=Preliminary. E=Estimate. NA=Not available. W=Value withheld to avoid disclosure of individual company data. — =Not applicable.

Note: See "Uranium Oxide" in Glossary.

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

Sources: • **1949–1966:** U.S. Department of Energy, Grand Junction Office, *Statistical Data of the Uranium Industry*, Report No. GJO-100, annual reports.

• **1967–2002:** U.S. Energy Information Administration (EIA), *Uranium Industry Annual*, annual reports. • **2003–2017:** EIA, "Domestic Uranium Production Report," annual reports; and EIA, "Uranium Marketing Annual Report," annual reports. • **2018 forward:** EIA, "2019 Domestic Uranium Production Report" (May 2020), Table 3; and EIA, "2019 Uranium Marketing Annual Report" (May 2020), Tables 5, 18, 19, 21, and 22.

**Note 1. Operable Nuclear Reactors.** A reactor is defined as operable when it possesses a full-power license from the Nuclear Regulatory Commission or its predecessor, the Atomic Energy Commission, or equivalent permission to operate, at the end of the year or month shown. The definition includes units retaining full-power licenses during long, non-routine shutdowns that for a time rendered them unable to generate electricity.

**Note 2. Nuclear Capacity.** Nuclear generating units may have more than one type of net capacity rating, including the following:

(a) Net Summer Capacity—The steady hourly output that generating equipment is expected to supply to system load, exclusive of auxiliary power, as demonstrated by test at the time of summer peak demand. Auxiliary power of a typical nuclear power plant is about 5% of gross generation.

(b) Net Design Capacity or Net Design Electrical Rating (DER)—The nominal net electrical output of a unit, specified by the utility and used for plant design.

Through 2007, the monthly capacity factors are calculated as the monthly nuclear electricity net generation divided by the maximum possible nuclear electricity net generation for that month. The maximum possible nuclear electricity net generation is the number of hours in the month (assuming 24-hour days, with no adjustment for changes to or from Daylight Savings Time) multiplied by the net summer capacity of operable nuclear generating units at the end of the month. That fraction is then multiplied by 100 to obtain a percentage. Annual capacity factors are calculated as the annual nuclear electricity net generation divided by the annual maximum possible nuclear electricity net generation (the sum of the monthly values for maximum possible nuclear electricity net generation). For the methodology used to calculate capacity factors beginning in 2008, see U.S. Energy Information Administration, *Electric Power Monthly*, Appendix C notes on “Average Capacity Factors.”

### Table 8.1 Sources

#### *Total Operable Units and Net Summer Capacity of Operable Units*

1957–1982: Compiled from various sources, primarily U.S. Department of Energy, Office of Nuclear Reactor Programs, “U.S. Central Station Nuclear Electric Generating Units: Significant Milestones.”

1983 forward: U.S. Energy Information Administration (EIA), Form EIA-860, “Annual Electric Generator Report,” and predecessor forms; Form EIA-860M, “Monthly Update to the Annual Electric Generator Report”; and monthly updates as appropriate. See <https://www.eia.gov/nuclear/generation/index.html> for a list of operable units.

#### *Nuclear Electricity Net Generation and Nuclear Share of Electricity Net Generation*

1957 forward: Table 7.2a.

#### *Capacity Factor*

1973–2007: Calculated by EIA using the method described above in Note 2.

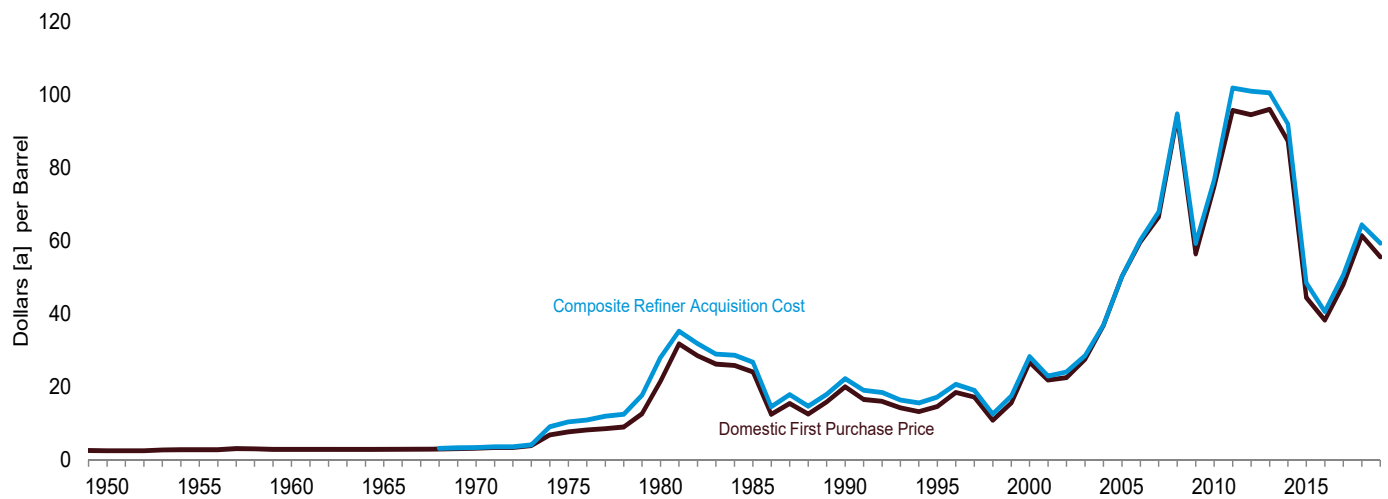
2008 forward: EIA, Form EIA-860, “Annual Electric Generator Report”; Form EIA-860M, “Monthly Update to the Annual Electric Generator Report”; and Form EIA-923, “Power Plant Operations Report.”

## 9. Energy Prices

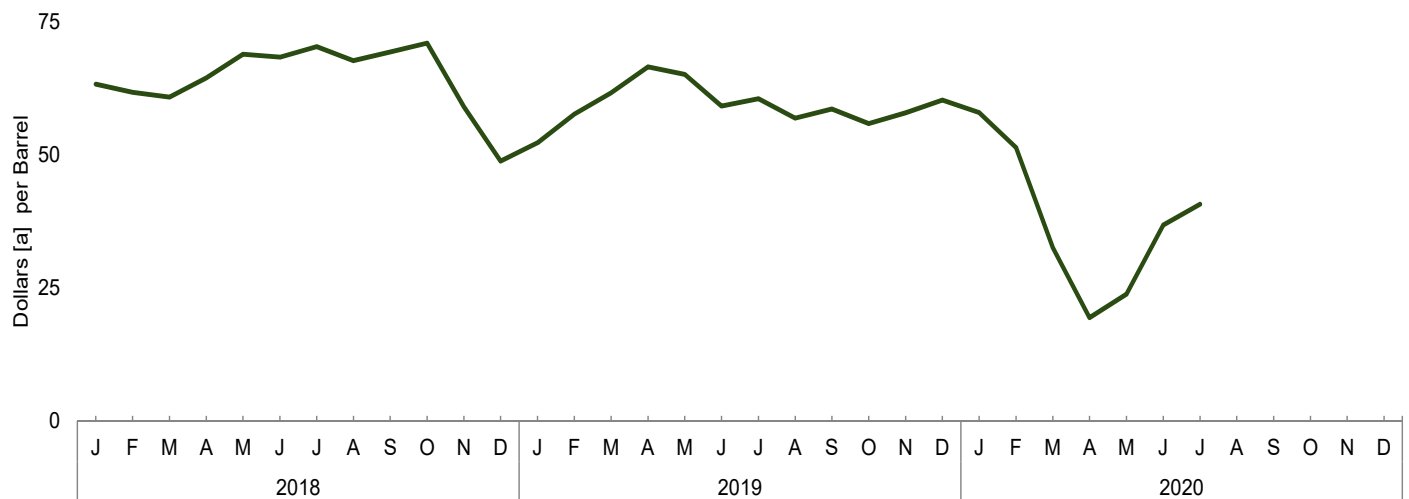
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**Figure 9.1 Petroleum Prices**

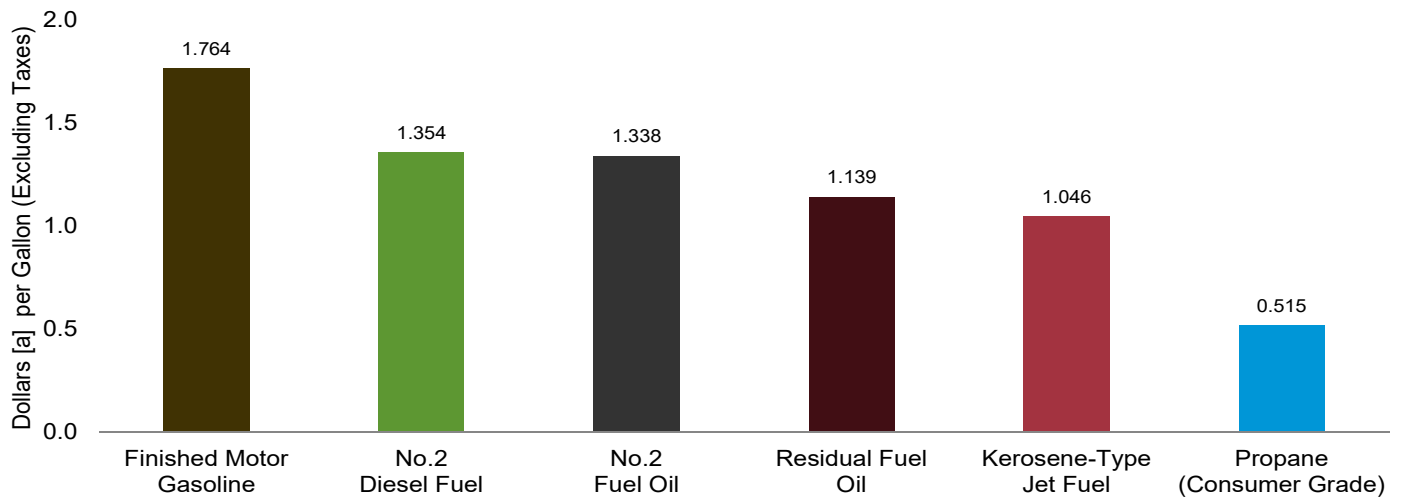
Crude Oil Prices, 1949–2019



Composite Refiner Acquisition Cost, Monthly



Refiner Prices to End Users: Select Products, June 2020



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

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

Sources: Tables 9.1, 9.5 and 9.7.

**Table 9.1 Crude Oil Price Summary**  
(Dollars<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
2014 Average .....	87.39	85.65	88.16	94.05	89.56	92.02
2015 Average .....	44.39	41.91	45.38	49.94	46.38	48.39
2016 Average .....	38.29	36.37	38.56	42.41	38.75	40.66
2017 Average .....	48.05	45.58	48.50	52.05	49.12	50.68
2018 January .....	62.25	55.73	58.25	66.08	59.71	63.25
February .....	61.18	53.42	56.76	64.68	58.03	61.74
March .....	60.68	53.35	56.32	64.03	56.82	60.81
April .....	63.50	58.56	60.62	67.14	61.24	64.41
May .....	66.16	62.95	65.15	71.29	65.89	68.91
June .....	62.80	63.09	65.48	69.63	66.82	68.35
July .....	67.00	62.35	65.44	73.33	66.62	70.29
August .....	62.64	61.41	64.16	69.45	65.48	67.68
September .....	63.54	61.56	63.69	71.09	66.70	69.29
October .....	65.18	60.23	61.78	73.07	67.79	70.99
November .....	55.65	44.66	47.16	62.47	54.40	59.01
December .....	47.63	36.91	39.14	53.25	42.80	48.83
Average .....	61.40	56.31	58.89	67.05	60.95	64.38
2019 January .....	48.00	48.70	49.25	54.06	49.71	52.29
February .....	52.60	54.23	56.17	58.24	56.66	57.62
March .....	57.46	57.54	59.48	61.97	61.14	61.64
April .....	63.00	61.31	63.62	67.21	65.42	66.51
May .....	59.73	60.74	63.70	65.17	65.03	65.11
June .....	54.34	54.56	57.43	59.81	58.16	59.16
July .....	56.47	54.51	57.00	61.47	59.18	60.53
August .....	53.63	51.98	54.91	57.88	55.41	56.90
September .....	55.14	52.68	55.06	59.41	57.31	58.60
October .....	53.14	50.40	53.74	56.69	54.44	55.85
November .....	54.96	51.87	54.48	59.42	55.27	57.88
December .....	58.41	51.57	53.92	62.23	56.85	60.27
Average .....	55.59	54.27	56.60	60.31	57.94	59.38
2020 January .....	56.86	46.98	51.03	60.36	53.96	57.94
February .....	50.03	41.65	44.57	53.98	47.42	51.37
March .....	31.80	24.10	26.77	34.98	28.50	32.55
April .....	15.99	R 13.91	R 17.18	21.25	16.74	19.41
May .....	R 18.09	R 18.65	R 21.95	R 24.97	R 22.56	R 23.84
June .....	R 33.53	R 31.67	R 35.14	R 37.24	R 36.17	R 36.80
July .....	NA	NA	NA	E 41.39	E 39.85	E 40.73

<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
1975 Average	10.97	—	11.44	11.82	10.87	—	11.04	10.88	11.34	10.62
1980 Average	33.45	W	31.06	35.93	28.17	34.36	24.81	28.92	32.21	32.85
1985 Average	26.30	—	25.33	28.04	22.04	27.64	23.64	23.31	25.67	25.96
1990 Average	20.23	20.75	19.26	22.46	20.36	23.43	19.55	18.54	20.40	20.32
1995 Average	16.58	16.73	15.64	17.40	W	16.94	13.86	W	15.36	16.02
2000 Average	27.90	29.04	25.39	28.70	24.62	27.21	24.45	24.72	25.56	26.77
2001 Average	23.25	24.25	18.89	24.85	18.98	23.30	18.01	18.89	19.73	21.04
2002 Average	24.09	24.64	21.60	25.38	23.92	24.50	20.13	23.38	22.18	22.93
2003 Average	28.22	28.89	24.83	29.40	25.03	28.76	23.81	25.17	25.36	26.21
2004 Average	37.26	37.73	31.55	38.71	34.08	37.30	31.78	33.08	33.95	33.58
2005 Average	52.48	51.89	43.00	55.95	47.96	54.48	46.39	47.21	49.60	45.79
2006 Average	62.23	59.77	52.91	65.69	56.09	66.03	55.80	56.02	59.18	55.35
2007 Average	67.80	67.93	61.35	76.64	W	69.96	64.10	69.93	69.58	62.69
2008 Average	95.66	91.17	84.61	102.06	93.03	96.33	88.06	91.44	93.15	87.15
2009 Average	57.07	57.90	56.47	64.61	57.87	65.63	55.58	59.53	58.53	57.16
2010 Average	78.18	72.56	72.46	80.83	76.44	W	70.30	75.65	75.23	73.24
2011 Average	111.82	100.21	100.90	115.35	107.08	—	97.23	106.47	105.34	98.49
2012 Average	111.23	106.43	101.84	114.51	106.65	—	100.15	105.45	104.39	95.71
2013 Average	107.71	101.24	98.40	110.06	101.16	W	97.52	100.62	100.57	93.67
2014 Average	W	80.75	86.55	W	95.60	—	84.51	94.03	89.76	82.95
2015 Average	W	47.52	44.90	W	47.53	—	40.73	46.95	43.25	41.19
2016 Average	42.68	35.28	36.22	46.20	39.30	W	34.71	38.76	38.51	34.81
2017 Average	W	48.34	46.66	54.77	51.30	W	45.60	50.16	49.55	43.30
<b>2018</b>										
January	W	61.24	58.75	W	65.03	W	62.07	63.50	64.12	51.34
February	W	59.66	56.74	W	63.19	W	55.72	61.90	61.07	49.79
March	—	W	56.73	W	65.04	W	56.84	61.90	60.90	49.09
April	W	65.95	57.68	W	68.33	W	63.28	66.05	66.09	53.73
May	—	W	63.32	W	70.57	W	66.56	69.66	70.07	58.99
June	W	W	64.46	W	71.32	W	64.82	70.18	69.44	59.81
July	W	68.32	66.21	—	70.62	—	62.93	70.30	67.64	59.85
August	W	67.29	63.08	W	71.08	W	63.09	70.11	68.40	57.46
September	W	W	68.15	W	72.90	W	68.94	72.05	71.80	56.39
October	W	W	73.91	W	74.73	W	68.44	74.61	73.26	54.18
November	—	64.87	63.76	W	62.34	W	53.25	63.44	60.58	36.18
December	—	50.04	52.70	W	57.79	—	46.46	55.74	53.04	28.95
<b>Average</b>	<b>74.44</b>	<b>62.51</b>	<b>62.75</b>	<b>71.41</b>	<b>68.23</b>	<b>71.65</b>	<b>61.25</b>	<b>66.55</b>	<b>65.61</b>	<b>51.41</b>
<b>2019</b>										
January	—	53.27	54.81	W	W	W	48.25	58.54	54.94	46.13
February	—	56.59	58.52	W	W	W	W	62.58	63.09	51.63
March	—	61.28	60.66	W	67.34	W	—	65.62	65.95	55.66
April	—	67.09	63.13	W	70.60	70.45	—	68.89	70.54	59.56
May	W	65.40	62.16	70.81	W	69.74	—	65.97	67.80	59.17
June	W	61.09	58.75	W	W	W	—	62.67	63.28	51.82
July	W	W	58.93	W	W	W	—	62.08	63.82	52.32
August	—	59.37	50.72	W	59.24	W	—	57.90	59.51	50.47
September	—	W	56.73	W	60.27	W	—	58.79	59.66	51.05
October	—	W	51.74	W	W	W	—	56.42	58.30	48.81
November	—	59.42	51.24	W	60.69	W	—	58.47	60.86	49.22
December	—	58.95	55.23	—	63.59	W	—	61.63	61.72	50.26
<b>Average</b>	<b>66.97</b>	<b>60.61</b>	<b>56.72</b>	<b>67.21</b>	<b>63.48</b>	<b>65.20</b>	<b>48.57</b>	<b>61.43</b>	<b>62.11</b>	<b>52.36</b>
<b>2020</b>										
January	—	56.90	53.70	W	49.26	W	—	50.36	53.02	46.47
February	—	W	47.74	W	W	W	—	W	53.00	40.64
March	W	27.34	28.59	W	W	W	—	24.18	28.28	23.56
April	W	<sup>R</sup> 19.88	12.25	W	<sup>R</sup> 21.44	—	—	<sup>R</sup> 21.44	<sup>R</sup> 22.79	<sup>R</sup> 11.81
May	—	W	<sup>R</sup> 22.85	W	W	<sup>R</sup> W	—	<sup>R</sup> 26.61	<sup>R</sup> 28.92	<sup>R</sup> 17.66
June	—	33.32	34.19	W	W	W	—	W	W	31.05

<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.

<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 Average	99.25	81.30	88.29	87.48	102.16	94.91	W	86.88	95.30	93.10	84.67
2015 Average	51.73	41.99	49.53	45.51	54.70	49.78	W	42.87	49.43	47.44	44.09
2016 Average	44.65	36.27	38.86	36.64	48.11	42.14	W	35.50	41.20	40.54	37.09
2017 Average	54.17	44.93	50.60	47.73	56.48	52.56	56.11	47.02	51.42	51.26	46.67
2018 January	66.55	51.17	63.25	59.86	69.15	64.81	W	62.79	63.83	64.78	54.69
February	W	48.27	62.55	57.37	69.60	65.30	68.19	55.98	63.21	62.93	53.05
March	70.27	47.01	63.59	56.99	70.59	66.77	W	57.72	63.72	63.53	51.07
April	W	52.22	66.34	58.62	W	69.44	73.82	63.62	67.09	66.95	56.32
May	W	58.19	70.63	64.03	79.38	71.28	W	67.45	70.85	71.50	61.72
June	76.28	58.57	70.64	65.38	W	72.17	72.88	65.81	71.49	70.65	62.95
July	75.55	59.00	71.20	66.82	W	72.56	—	63.67	71.62	70.54	62.54
August	75.45	56.78	68.79	64.18	W	72.85	72.41	64.12	71.64	70.48	60.79
September	75.83	52.35	73.88	69.79	W	72.56	W	70.73	72.26	72.45	58.76
October	W	47.96	74.22	74.76	W	73.75	W	69.31	72.24	72.19	57.15
November	—	28.06	66.20	64.52	68.03	65.87	W	55.70	64.99	63.30	38.56
December	—	21.62	64.71	53.89	62.21	60.39	W	48.93	58.67	57.11	30.89
Average	73.42	48.34	66.75	63.48	71.93	69.40	73.28	62.46	67.55	67.22	54.27
2019 January	—	40.33	56.26	56.12	W	61.69	W	51.68	59.80	57.34	45.44
February	—	50.48	59.69	59.72	W	66.37	W	52.72	64.07	62.76	53.82
March	—	54.61	64.65	61.82	W	67.50	W	55.25	65.81	65.30	57.85
April	W	59.01	69.08	64.18	75.99	69.74	73.00	—	68.83	69.89	62.21
May	72.84	58.49	68.17	62.81	72.66	67.93	71.30	W	67.05	68.82	62.19
June	W	50.84	65.87	59.32	69.37	65.06	65.41	—	63.71	65.04	55.30
July	W	51.14	64.10	59.50	67.57	64.14	64.63	—	63.83	64.76	55.02
August	—	50.68	59.22	51.59	65.76	61.59	W	—	60.87	61.75	52.99
September	W	50.64	58.77	57.73	66.34	61.59	64.40	—	61.03	61.58	53.27
October	W	49.64	57.88	53.03	65.73	62.36	63.06	—	59.89	60.99	51.93
November	W	49.20	60.91	52.57	69.20	64.85	W	—	62.06	62.97	51.97
December	—	48.36	62.66	56.78	W	65.83	W	—	63.23	63.52	52.13
Average	68.58	51.10	62.83	57.96	68.78	64.86	66.65	52.36	63.27	63.41	54.65
2020 January	—	45.70	62.93	55.93	W	53.68	W	—	55.30	57.36	49.70
February	—	39.83	54.16	49.62	62.07	52.48	W	—	52.65	54.24	42.80
March	W	23.47	35.15	29.42	W	23.94	W	—	27.04	29.04	25.97
April	30.93	R 13.34	R 23.24	13.73	W	R 22.33	W	—	R 22.78	R 23.66	R 14.91
May	W	R 17.45	R 28.61	R 24.30	W	R 25.65	W	—	R 27.64	R 28.64	R 20.34
June	—	34.76	33.17	34.93	W	33.45	W	—	36.69	37.30	34.89

<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.

<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*, September 2020, 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 Average .....	--	3.367	3.713	3.425	3.299	3.481	3.358	3.825
2015 Average .....	--	2.448	2.866	2.510	2.334	2.629	2.429	2.707
2016 Average .....	--	2.142	2.610	2.204	2.070	2.296	2.143	2.304
2017 Average .....	--	2.408	2.911	2.469	2.333	2.586	2.415	2.650
2018 January .....	--	2.539	3.042	2.596	2.467	2.738	2.555	3.018
February .....	--	2.575	3.091	2.632	2.488	2.795	2.587	3.046
March .....	--	2.572	3.101	2.631	2.488	2.808	2.591	2.988
April .....	--	2.737	3.258	2.795	2.652	2.978	2.757	3.096
May .....	--	2.907	3.423	2.963	2.808	3.096	2.901	3.244
June .....	--	2.914	3.440	2.970	2.802	3.078	2.891	3.253
July .....	--	2.873	3.399	2.930	2.770	3.015	2.849	3.233
August .....	--	2.862	3.384	2.919	2.768	2.983	2.836	3.218
September .....	--	2.873	3.400	2.930	2.769	2.979	2.836	3.262
October .....	--	2.887	3.431	2.945	2.785	3.017	2.860	3.365
November .....	--	2.671	3.251	2.733	2.561	2.829	2.647	3.300
December .....	--	2.414	3.015	2.479	2.263	2.581	2.366	3.123
Average .....	--	2.735	3.270	2.794	2.631	2.904	2.719	3.178
2019 January .....	--	2.289	2.874	2.352	2.145	2.464	2.248	2.980
February .....	--	2.353	2.901	2.412	2.223	2.495	2.309	2.997
March .....	--	2.564	3.079	2.620	2.443	2.673	2.516	3.076
April .....	--	2.835	3.382	2.894	2.694	3.023	2.798	3.121
May .....	--	2.901	3.471	2.963	2.731	3.136	2.859	3.161
June .....	--	2.752	3.328	2.814	2.601	2.963	2.716	3.089
July .....	--	2.776	3.327	2.836	2.640	2.954	2.740	3.045
August .....	--	2.655	3.222	2.716	2.521	2.836	2.621	3.005
September .....	--	2.630	3.214	2.694	2.489	2.814	2.592	3.016
October .....	--	2.673	3.297	2.741	2.497	2.907	2.627	3.053
November .....	--	2.620	3.254	2.687	2.480	2.853	2.598	3.069
December .....	--	2.587	3.190	2.652	2.469	2.744	2.555	3.055
Average .....	--	2.636	3.212	2.698	2.501	2.827	2.604	3.056
2020 January .....	--	2.567	3.157	2.631	2.459	2.740	2.548	3.048
February .....	--	2.465	3.071	2.530	2.348	2.645	2.442	2.910
March .....	--	2.267	2.893	2.334	2.126	2.468	2.234	2.729
April .....	--	1.876	2.527	1.946	1.721	2.096	1.841	2.493
May .....	--	1.879	2.490	1.946	1.769	2.084	1.870	2.392
June .....	--	2.076	2.673	2.141	1.998	2.263	2.082	2.408
July .....	--	2.176	2.783	2.243	2.099	2.365	2.183	2.434
August .....	--	2.177	2.795	2.245	2.093	2.374	2.182	2.429

<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 Average</b> .....	2.153	2.694	1.996	2.221	2.044	2.325
<b>2015 Average</b> .....	.971	1.529	.999	1.227	.996	1.285
<b>2016 Average</b> .....	.736	1.138	.746	.897	.745	.945
<b>2017 Average</b> .....	1.112	W	1.117	1.237	1.116	1.287
<b>2018 January</b> .....	1.301	W	1.311	1.476	1.310	1.507
February .....	1.221	W	1.325	1.415	1.319	1.490
March .....	1.227	W	1.306	1.386	1.302	1.452
April .....	1.311	W	1.349	1.438	1.348	1.504
May .....	1.462	W	1.501	1.615	1.500	1.667
June .....	1.487	W	1.558	1.643	1.553	1.731
July .....	1.543	W	1.583	1.709	1.581	1.767
August .....	1.499	W	1.552	1.680	1.549	1.764
September .....	1.520	W	1.561	1.696	1.560	1.761
October .....	1.620	W	1.703	1.816	1.700	1.875
November .....	1.360	W	1.562	1.731	1.556	1.827
December .....	1.252	W	1.295	1.467	1.293	1.608
<b>Average</b> .....	<b>1.397</b>	<b>W</b>	<b>1.466</b>	<b>1.587</b>	<b>1.463</b>	<b>1.662</b>
<b>2019 January</b> .....	1.626	W	1.326	1.417	1.357	1.425
February .....	1.808	W	1.458	1.553	1.508	1.568
March .....	W	W	1.542	1.606	1.581	1.639
April .....	W	W	1.549	1.648	1.577	1.685
May .....	W	W	1.502	1.607	1.505	1.635
June .....	W	W	1.367	1.527	1.372	1.601
July .....	1.455	W	1.492	1.572	1.489	1.625
August .....	1.331	W	1.235	1.345	1.247	1.466
September .....	W	W	1.325	1.511	1.337	1.560
October .....	1.535	W	1.188	1.393	1.263	1.543
November .....	1.681	W	1.220	1.364	1.353	1.594
December .....	1.758	W	1.460	1.543	1.597	1.745
<b>Average</b> .....	<b>1.649</b>	<b>W</b>	<b>1.391</b>	<b>1.510</b>	<b>1.428</b>	<b>1.584</b>
<b>2020 January</b> .....	1.788	W	1.526	1.634	1.675	1.939
February .....	1.673	W	1.336	1.557	1.540	1.735
March .....	1.188	W	.993	1.146	1.121	1.371
April .....	.796	W	.639	.942	.733	.976
May .....	.792	W	NA	.727	.775	.817
June .....	1.018	W	NA	.984	1.015	1.139

<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*, September 2020, 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)
<b>1978 Average</b> .....	<b>0.434</b>	<b>0.537</b>	<b>0.386</b>	<b>0.404</b>	<b>0.369</b>	<b>0.365</b>	<b>0.237</b>
<b>1980 Average</b> .....	<b>.941</b>	<b>1.128</b>	<b>.868</b>	<b>.864</b>	<b>.803</b>	<b>.801</b>	<b>.415</b>
<b>1985 Average</b> .....	<b>.835</b>	<b>1.130</b>	<b>.794</b>	<b>.874</b>	<b>.776</b>	<b>.772</b>	<b>.398</b>
<b>1990 Average</b> .....	<b>.786</b>	<b>1.063</b>	<b>.773</b>	<b>.839</b>	<b>.697</b>	<b>.694</b>	<b>.386</b>
<b>1995 Average</b> .....	<b>.626</b>	<b>.975</b>	<b>.539</b>	<b>.580</b>	<b>.511</b>	<b>.538</b>	<b>.344</b>
<b>2000 Average</b> .....	<b>.963</b>	<b>1.330</b>	<b>.880</b>	<b>.969</b>	<b>.886</b>	<b>.898</b>	<b>.595</b>
<b>2001 Average</b> .....	<b>.886</b>	<b>1.256</b>	<b>.763</b>	<b>.821</b>	<b>.756</b>	<b>.784</b>	<b>.540</b>
<b>2002 Average</b> .....	<b>.828</b>	<b>1.146</b>	<b>.716</b>	<b>.752</b>	<b>.694</b>	<b>.724</b>	<b>.431</b>
<b>2003 Average</b> .....	<b>1.002</b>	<b>1.288</b>	<b>.871</b>	<b>.955</b>	<b>.881</b>	<b>.883</b>	<b>.607</b>
<b>2004 Average</b> .....	<b>1.288</b>	<b>1.627</b>	<b>1.208</b>	<b>1.271</b>	<b>1.125</b>	<b>1.187</b>	<b>.751</b>
<b>2005 Average</b> .....	<b>1.670</b>	<b>2.076</b>	<b>1.723</b>	<b>1.757</b>	<b>1.623</b>	<b>1.737</b>	<b>.933</b>
<b>2006 Average</b> .....	<b>1.969</b>	<b>2.490</b>	<b>1.961</b>	<b>2.007</b>	<b>1.834</b>	<b>2.012</b>	<b>1.031</b>
<b>2007 Average</b> .....	<b>2.182</b>	<b>2.758</b>	<b>2.171</b>	<b>2.249</b>	<b>2.072</b>	<b>2.203</b>	<b>1.194</b>
<b>2008 Average</b> .....	<b>2.586</b>	<b>3.342</b>	<b>3.020</b>	<b>2.851</b>	<b>2.745</b>	<b>2.994</b>	<b>1.437</b>
<b>2009 Average</b> .....	<b>1.767</b>	<b>2.480</b>	<b>1.719</b>	<b>1.844</b>	<b>1.657</b>	<b>1.713</b>	<b>.921</b>
<b>2010 Average</b> .....	<b>2.165</b>	<b>2.874</b>	<b>2.185</b>	<b>2.299</b>	<b>2.147</b>	<b>2.214</b>	<b>1.212</b>
<b>2011 Average</b> .....	<b>2.867</b>	<b>3.739</b>	<b>3.014</b>	<b>3.065</b>	<b>2.907</b>	<b>3.034</b>	<b>1.467</b>
<b>2012 Average</b> .....	<b>2.929</b>	<b>3.919</b>	<b>3.080</b>	<b>3.163</b>	<b>3.031</b>	<b>3.109</b>	<b>1.033</b>
<b>2013 Average</b> .....	<b>2.812</b>	<b>3.869</b>	<b>2.953</b>	<b>3.084</b>	<b>2.966</b>	<b>3.028</b>	<b>1.048</b>
<b>2014 Average</b> .....	<b>2.618</b>	<b>3.687</b>	<b>2.763</b>	<b>2.882</b>	<b>2.741</b>	<b>2.812</b>	<b>1.165</b>
<b>2015 Average</b> .....	<b>1.726</b>	<b>2.764</b>	<b>1.592</b>	<b>1.735</b>	<b>1.565</b>	<b>1.667</b>	<b>.555</b>
<b>2016 Average</b> .....	<b>1.454</b>	<b>2.404</b>	<b>1.295</b>	<b>1.383</b>	<b>1.239</b>	<b>1.378</b>	<b>.523</b>
<b>2017 Average</b> .....	<b>1.689</b>	<b>2.682</b>	<b>1.603</b>	<b>1.730</b>	<b>1.600</b>	<b>1.691</b>	<b>.800</b>
<b>2018 January</b> .....	<b>1.849</b>	<b>2.900</b>	<b>1.969</b>	<b>2.209</b>	<b>1.990</b>	<b>2.042</b>	<b>.990</b>
February .....	1.823	2.893	1.911	2.088	1.889	1.972	.889
March .....	1.889	2.904	1.893	1.969	1.848	1.952	.827
April .....	2.054	3.085	2.032	2.075	1.982	2.099	.792
May .....	2.205	3.181	2.175	2.205	2.143	2.258	.867
June .....	2.135	3.138	2.152	2.145	2.089	2.203	.807
July .....	2.148	3.111	2.140	2.133	2.079	2.192	.854
August .....	2.118	3.085	2.148	2.169	2.114	2.203	.907
September .....	2.136	3.124	2.214	2.246	2.214	2.282	.951
October .....	2.090	3.099	2.296	2.437	2.281	2.379	.948
November .....	1.732	2.762	2.100	2.206	2.098	2.130	.826
December .....	1.514	2.463	1.811	1.954	1.796	1.794	.798
<b>Average</b> .....	<b>1.980</b>	<b>3.006</b>	<b>2.073</b>	<b>2.160</b>	<b>2.002</b>	<b>2.130</b>	<b>.877</b>
<b>2019 January</b> .....	<b>1.483</b>	<b>2.394</b>	<b>1.822</b>	<b>2.021</b>	<b>1.813</b>	<b>1.789</b>	<b>.775</b>
February .....	1.624	2.527	1.925	2.111	1.907	1.950	.772
March .....	1.881	2.874	1.960	2.087	1.958	2.020	.754
April .....	2.138	3.100	2.022	2.073	1.993	2.100	.660
May .....	2.110	3.021	2.061	2.057	1.989	2.106	.595
June .....	1.909	2.841	1.879	1.914	1.824	1.874	.493
July .....	1.984	2.988	1.938	1.969	1.847	1.938	.478
August .....	1.820	2.854	1.864	1.861	1.795	1.865	.458
September .....	1.854	2.829	1.898	1.984	1.901	1.955	.477
October .....	1.871	2.857	1.931	2.003	1.926	1.984	.544
November .....	1.819	2.783	1.922	2.046	1.884	1.974	.655
December .....	1.757	2.734	1.932	2.087	1.919	1.943	.632
<b>Average</b> .....	<b>1.858</b>	<b>2.842</b>	<b>1.929</b>	<b>2.017</b>	<b>1.895</b>	<b>1.958</b>	<b>.622</b>
<b>2020 January</b> .....	<b>1.743</b>	<b>2.752</b>	<b>1.891</b>	<b>2.008</b>	<b>1.863</b>	<b>1.858</b>	<b>.557</b>
February .....	1.669	2.698	1.613	1.802	1.627	1.671	.530
March .....	1.127	2.279	1.189	1.115	1.238	1.278	.410
April .....	.645	1.590	.703	.837	.872	.908	.378
May .....	<sup>R</sup> 1.049	1.869	<sup>R</sup> .690	.848	<sup>R</sup> .795	.878	.454
June .....	1.311	2.126	1.006	1.099	1.005	1.135	.514

<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*, September 2020, 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)
<b>1978 Average</b> .....	<b>0.484</b>	<b>0.516</b>	<b>0.387</b>	<b>0.421</b>	<b>0.400</b>	<b>0.377</b>	<b>0.335</b>
<b>1980 Average</b> .....	<b>1.035</b>	<b>1.084</b>	<b>.868</b>	<b>.902</b>	<b>.788</b>	<b>.818</b>	<b>.482</b>
<b>1985 Average</b> .....	<b>.912</b>	<b>1.201</b>	<b>.796</b>	<b>1.030</b>	<b>.849</b>	<b>.789</b>	<b>.717</b>
<b>1990 Average</b> .....	<b>.883</b>	<b>1.120</b>	<b>.766</b>	<b>.923</b>	<b>.734</b>	<b>.725</b>	<b>.745</b>
<b>1995 Average</b> .....	<b>.765</b>	<b>1.005</b>	<b>.540</b>	<b>.589</b>	<b>.562</b>	<b>.560</b>	<b>.492</b>
<b>2000 Average</b> .....	<b>1.106</b>	<b>1.306</b>	<b>.899</b>	<b>1.123</b>	<b>.927</b>	<b>.935</b>	<b>.603</b>
<b>2001 Average</b> .....	<b>1.032</b>	<b>1.323</b>	<b>.775</b>	<b>1.045</b>	<b>.829</b>	<b>.842</b>	<b>.506</b>
<b>2002 Average</b> .....	<b>.947</b>	<b>1.288</b>	<b>.721</b>	<b>.990</b>	<b>.737</b>	<b>.762</b>	<b>.419</b>
<b>2003 Average</b> .....	<b>1.156</b>	<b>1.493</b>	<b>.872</b>	<b>1.224</b>	<b>.933</b>	<b>.944</b>	<b>.577</b>
<b>2004 Average</b> .....	<b>1.435</b>	<b>1.819</b>	<b>1.207</b>	<b>1.160</b>	<b>1.173</b>	<b>1.243</b>	<b>.839</b>
<b>2005 Average</b> .....	<b>1.829</b>	<b>2.231</b>	<b>1.735</b>	<b>1.957</b>	<b>1.705</b>	<b>1.786</b>	<b>1.089</b>
<b>2006 Average</b> .....	<b>2.128</b>	<b>2.682</b>	<b>1.998</b>	<b>2.244</b>	<b>1.982</b>	<b>2.096</b>	<b>1.358</b>
<b>2007 Average</b> .....	<b>2.345</b>	<b>2.849</b>	<b>2.165</b>	<b>2.263</b>	<b>2.241</b>	<b>2.267</b>	<b>1.489</b>
<b>2008 Average</b> .....	<b>2.775</b>	<b>3.273</b>	<b>3.052</b>	<b>3.283</b>	<b>2.986</b>	<b>3.150</b>	<b>1.892</b>
<b>2009 Average</b> .....	<b>1.888</b>	<b>2.442</b>	<b>1.704</b>	<b>2.675</b>	<b>1.962</b>	<b>1.834</b>	<b>1.220</b>
<b>2010 Average</b> .....	<b>2.301</b>	<b>3.028</b>	<b>2.201</b>	<b>3.063</b>	<b>2.462</b>	<b>2.314</b>	<b>1.481</b>
<b>2011 Average</b> .....	<b>3.050</b>	<b>3.803</b>	<b>3.054</b>	<b>3.616</b>	<b>3.193</b>	<b>3.117</b>	<b>1.709</b>
<b>2012 Average</b> .....	<b>3.154</b>	<b>3.971</b>	<b>3.104</b>	<b>3.843</b>	<b>3.358</b>	<b>3.202</b>	<b>1.139</b>
<b>2013 Average</b> .....	<b>3.049</b>	<b>3.932</b>	<b>2.979</b>	<b>3.842</b>	<b>3.335</b>	<b>3.122</b>	<b>1.028</b>
<b>2014 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 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 Average</b> .....	<b>1.730</b>	<b>W</b>	<b>1.319</b>	<b>W</b>	<b>1.716</b>	<b>1.511</b>	<b>.498</b>
<b>2017 Average</b> .....	<b>1.976</b>	<b>W</b>	<b>1.629</b>	<b>W</b>	<b>2.010</b>	<b>1.811</b>	<b>.772</b>
<b>2018 January</b> .....	<b>2.108</b>	<b>W</b>	<b>2.012</b>	<b>W</b>	<b>2.206</b>	<b>2.144</b>	<b>.971</b>
February .....	2.127	W	1.970	W	2.365	2.107	.948
March .....	2.160	W	1.924	W	2.484	2.076	.842
April .....	2.315	W	2.080	W	2.486	2.201	.839
May .....	2.494	W	2.221	3.219	2.478	2.368	.916
June .....	2.469	W	2.196	3.292	2.413	2.340	.883
July .....	2.442	W	2.176	W	2.436	2.316	.956
August .....	2.421	W	2.183	3.272	2.499	2.327	.989
September .....	2.428	W	2.257	3.189	2.612	2.388	1.062
October .....	2.441	W	2.349	W	2.696	2.500	.988
November .....	2.205	W	2.162	W	2.431	2.282	.876
December .....	1.973	W	1.852	W	2.222	1.981	.794
<b>Average</b> .....	<b>2.303</b>	<b>W</b>	<b>2.119</b>	<b>3.113</b>	<b>2.380</b>	<b>2.256</b>	<b>.925</b>
<b>2019 January</b> .....	<b>1.854</b>	<b>W</b>	<b>1.827</b>	<b>W</b>	<b>2.195</b>	<b>1.960</b>	<b>.756</b>
February .....	1.949	W	1.956	W	2.367	2.080	.784
March .....	2.137	W	2.005	W	2.376	2.158	.761
April .....	2.487	W	2.063	W	2.461	2.259	.686
May .....	2.520	W	2.141	W	2.389	2.272	.599
June .....	2.366	W	1.907	3.312	2.156	2.078	.464
July .....	2.375	W	1.973	3.260	2.206	2.100	.487
August .....	2.252	W	1.901	W	2.155	2.037	.461
September .....	2.242	W	1.937	3.203	2.200	2.101	.473
October .....	2.289	W	1.965	W	2.174	2.134	.516
November .....	2.229	W	1.979	W	2.321	2.126	.635
December .....	2.182	W	1.979	W	2.361	2.072	.601
<b>Average</b> .....	<b>2.245</b>	<b>W</b>	<b>1.970</b>	<b>W</b>	<b>2.269</b>	<b>2.114</b>	<b>.603</b>
<b>2020 January</b> .....	<b>2.150</b>	<b>W</b>	<b>1.958</b>	<b>W</b>	<b>2.328</b>	<b>2.002</b>	<b>.502</b>
February .....	2.060	W	1.667	W	2.113	1.835	.469
March .....	1.862	W	1.257	W	1.813	1.486	.378
April .....	1.490	W	.740	W	1.220	1.137	.368
May .....	1.598	W	<sup>R</sup> .728	W	1.162	<sup>R</sup> 1.130	.421
June .....	1.764	W	1.046	3.321	1.338	1.354	.515

<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. 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.

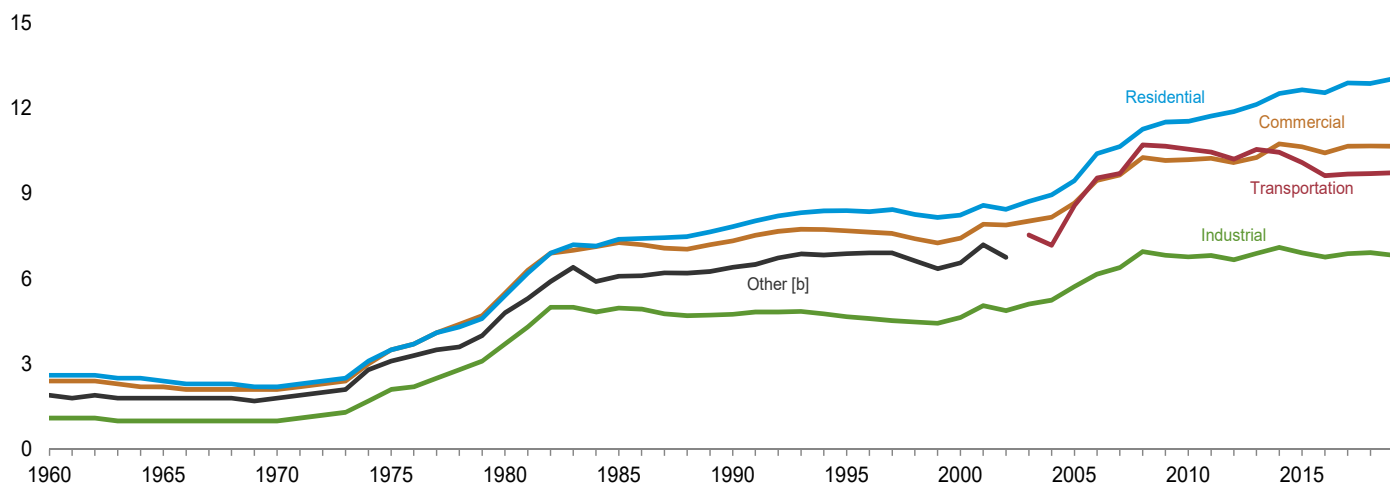
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#prices> (Excel and CSV files) for all available annual data beginning in 1978 and monthly data beginning in 1982.

Sources: • **1978–2007:** EIA, *Petroleum Marketing Annual 2007*, Table 2. • **2008 forward:** EIA, *Petroleum Marketing Monthly*, September 2020, Table 2.

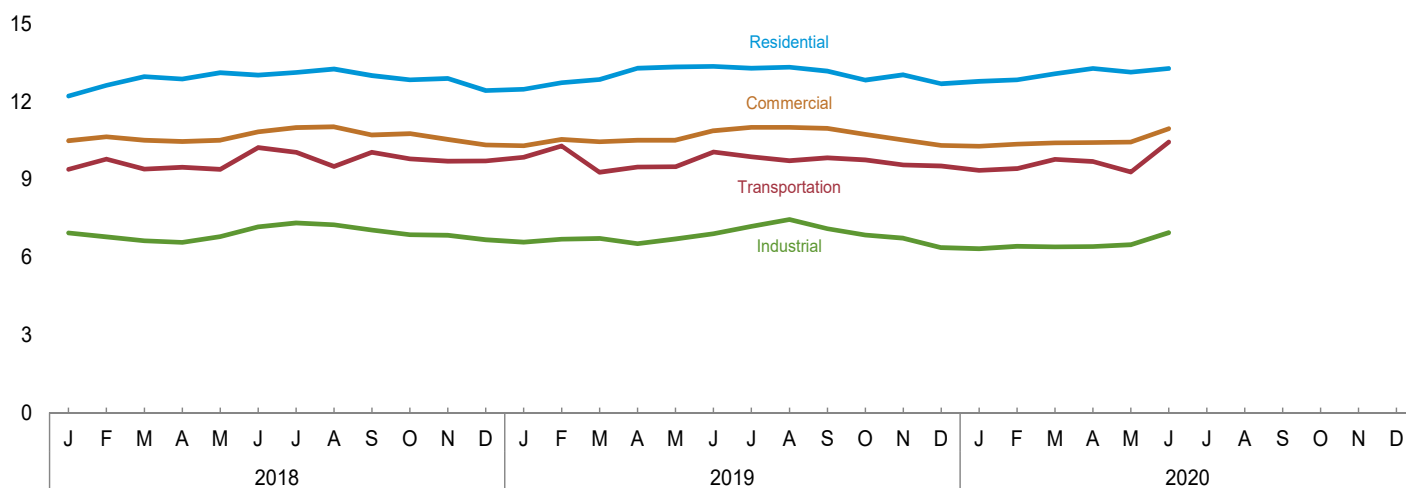
**Figure 9.2 Average Retail Prices of Electricity**

(Cents [a] per Kilowatthour)

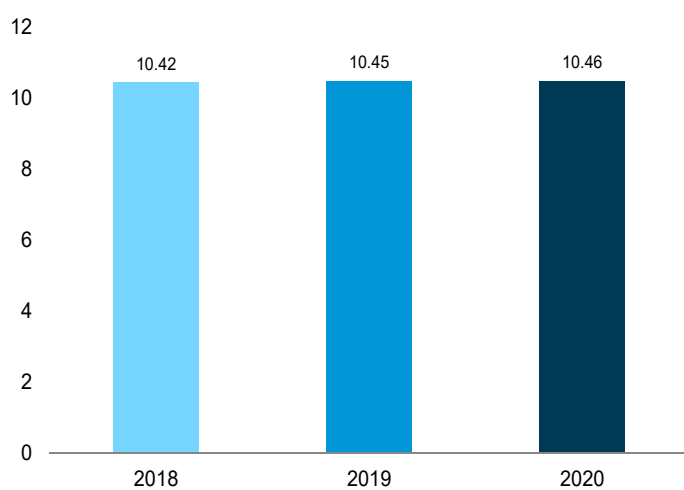
By Sector, 1960–2019



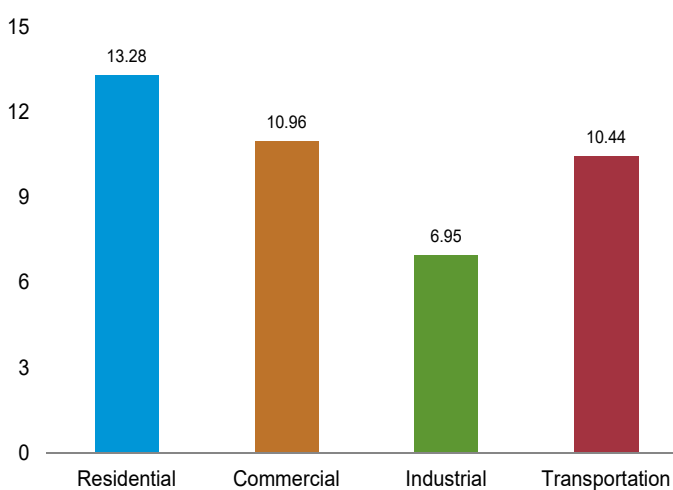
By Sector, Monthly



Total, January–June



By Sector, June 2020



[a] Prices are not adjusted for inflation. See “Nominal Dollars” in Glossary.  
[b] Public street and highway lighting, interdepartmental sales, other sales to public authorities, agricultural and irrigation, and transportation including railroads and railways.

Note: Includes taxes.  
Web Page: <http://www.eia.gov/totalenergy/data/monthly/#prices>.  
Source: Table 9.8.

**Table 9.8 Average Retail Prices of Electricity**  
(Cents<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
1960 Average .....	2.60	2.40	1.10	NA	1.90	1.80
1965 Average .....	2.40	2.20	1.00	NA	1.80	1.70
1970 Average .....	2.20	2.10	1.00	NA	1.80	1.70
1975 Average .....	3.50	3.50	2.10	NA	3.10	2.90
1980 Average .....	5.40	5.50	3.70	NA	4.80	4.70
1985 Average .....	7.39	7.27	4.97	NA	6.09	6.44
1990 Average .....	7.83	7.34	4.74	NA	6.40	6.57
1995 Average .....	8.40	7.69	4.66	NA	6.88	6.89
2000 Average .....	8.24	7.43	4.64	NA	6.56	6.81
2001 Average .....	8.58	7.92	5.05	NA	7.20	7.29
2002 Average .....	8.44	7.89	4.88	NA	6.75	7.20
2003 Average .....	8.72	8.03	5.11	7.54	--	7.44
2004 Average .....	8.95	8.17	5.25	7.18	--	7.61
2005 Average .....	9.45	8.67	5.73	8.57	--	8.14
2006 Average .....	10.40	9.46	6.16	9.54	--	8.90
2007 Average .....	10.65	9.65	6.39	9.70	--	9.13
2008 Average .....	11.26	10.26	6.96	10.71	--	9.74
2009 Average .....	11.51	10.16	6.83	10.66	--	9.82
2010 Average .....	11.54	10.19	6.77	10.56	--	9.83
2011 Average .....	11.72	10.24	6.82	10.46	--	9.90
2012 Average .....	11.88	10.09	6.67	10.21	--	9.84
2013 Average .....	12.13	10.26	6.89	10.55	--	10.07
2014 Average .....	12.52	10.74	7.10	10.45	--	10.44
2015 Average .....	12.65	10.64	6.91	10.09	--	10.41
2016 Average .....	12.55	10.43	6.76	9.63	--	10.27
2017 Average .....	12.89	10.66	6.88	9.68	--	10.48
<b>2018</b> January .....	12.22	10.49	6.94	9.39	--	10.41
February .....	12.63	10.65	6.78	9.78	--	10.42
March .....	12.97	10.51	6.63	9.40	--	10.34
April .....	12.88	10.46	6.57	9.47	--	10.18
May .....	13.12	10.51	6.79	9.39	--	10.35
June .....	13.03	10.84	7.17	10.23	--	10.75
July .....	13.13	11.00	7.32	10.05	--	10.99
August .....	13.26	11.03	7.25	9.50	--	11.01
September .....	13.01	10.72	7.05	10.05	--	10.66
October .....	12.85	10.77	6.87	9.79	--	10.41
November .....	12.90	10.54	6.85	9.70	--	10.35
December .....	12.43	10.33	6.67	9.71	--	10.21
<b>Average</b> .....	<b>12.87</b>	<b>10.67</b>	<b>6.92</b>	<b>9.70</b>	--	<b>10.53</b>
<b>2019</b> January .....	12.48	10.30	6.58	9.86	--	10.29
February .....	12.73	10.54	6.69	10.29	--	10.45
March .....	12.86	10.45	6.72	9.28	--	10.39
April .....	13.29	10.51	6.52	9.48	--	10.30
May .....	13.34	10.51	6.70	9.49	--	10.42
June .....	13.36	10.88	6.91	10.06	--	10.80
July .....	13.29	11.01	7.19	9.88	--	11.06
August .....	13.33	11.01	7.45	9.72	--	11.12
September .....	13.18	10.97	7.10	9.84	--	10.89
October .....	12.84	10.74	6.86	9.75	--	10.46
November .....	13.04	10.52	6.73	9.56	--	10.41
December .....	12.69	10.31	6.37	9.52	--	10.27
<b>Average</b> .....	<b>13.04</b>	<b>10.66</b>	<b>6.83</b>	<b>9.73</b>	--	<b>10.60</b>
<b>2020</b> January .....	12.79	10.28	6.33	9.35	--	10.29
February .....	12.85	10.36	6.42	9.42	--	10.29
March .....	13.08	10.41	6.40	9.77	--	10.29
April .....	13.28	10.42	6.41	9.69	--	10.42
May .....	13.14	10.44	6.48	9.29	--	10.45
June .....	13.28	10.96	6.95	10.44	--	10.97
<b>6-Month Average</b> .....	<b>13.06</b>	<b>10.48</b>	<b>6.50</b>	<b>9.63</b>	--	<b>10.46</b>
<b>2019 6-Month Average</b> .....	<b>12.98</b>	<b>10.54</b>	<b>6.69</b>	<b>9.75</b>	--	<b>10.45</b>
<b>2018 6-Month Average</b> .....	<b>12.77</b>	<b>10.58</b>	<b>6.82</b>	<b>9.61</b>	--	<b>10.42</b>

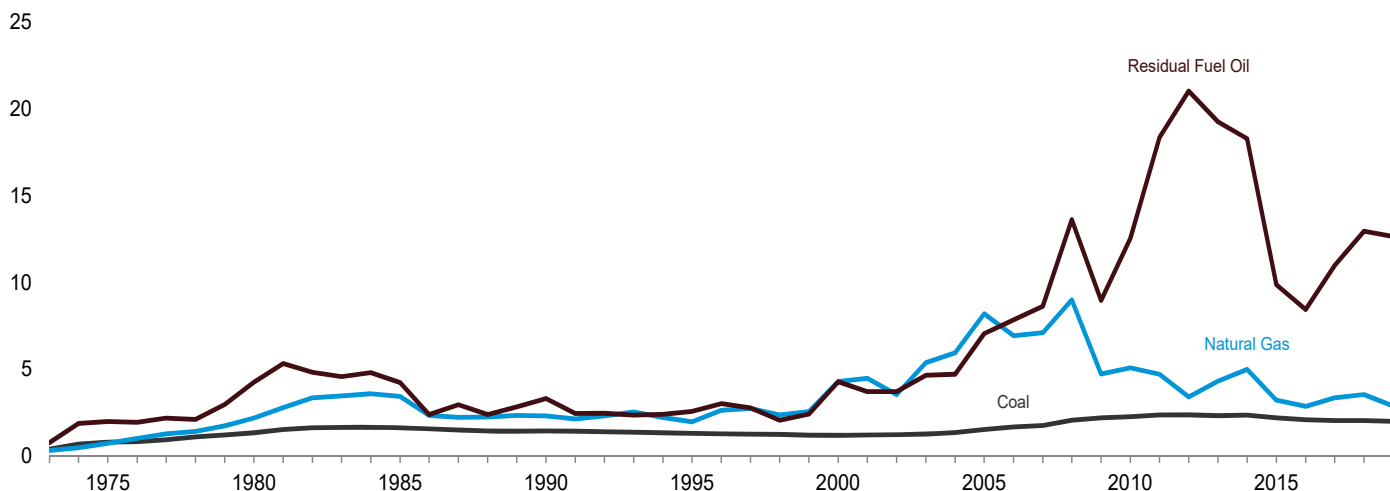
<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Price" in Glossary.  
<sup>b</sup> Commercial sector. For 1960–2002, prices exclude public street and highway lighting, interdepartmental sales, and other sales to public authorities.  
<sup>c</sup> Industrial sector. For 1960–2002, prices 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*, August 2020, Table 5.3.

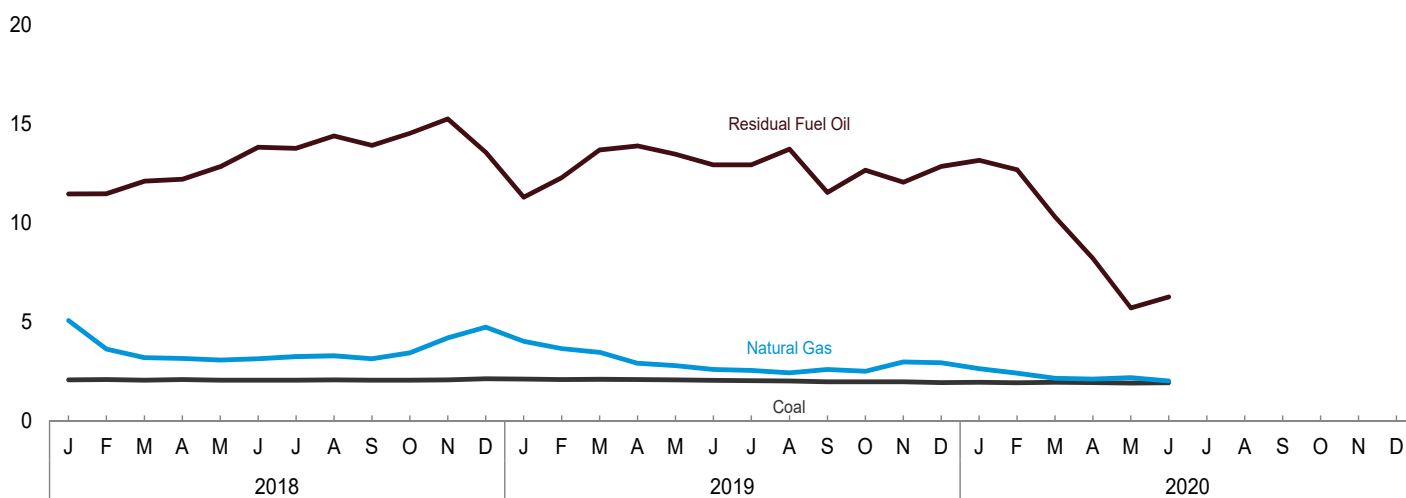
**Figure 9.3 Cost of Fossil-Fuel Receipts at Electric Generating Plants**

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

Costs, 1973–2019

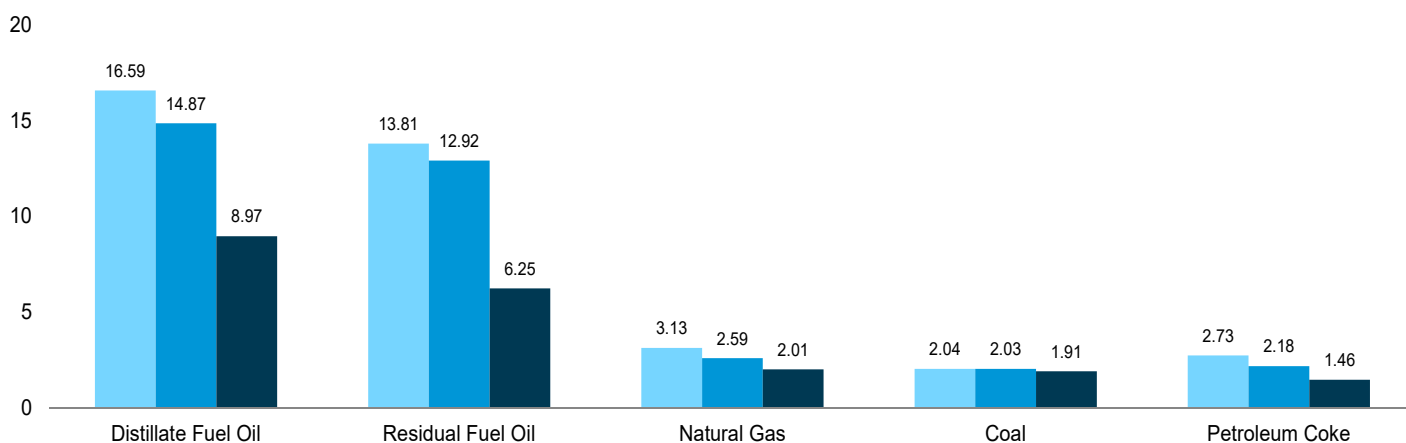


Costs, Monthly



By Fuel Type

June 2018 June 2019 June 2020



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

Web Page: <http://www.eia.gov/totalenergy/data/monthly/#prices>.  
Source: Table 9.9.



**Table 9.9 Cost of Fossil-Fuel Receipts at Electric Generating Plants**

(Dollars<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 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 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 Average</b> .....	<b>2.11</b>	<b>8.45</b>	<b>10.90</b>	<b>1.65</b>	<b>5.24</b>	<b>2.87</b>	<b>2.47</b>
<b>2017 Average</b> .....	<b>2.06</b>	<b>11.00</b>	<b>13.22</b>	<b>2.13</b>	<b>7.10</b>	<b>3.37</b>	<b>2.65</b>
<b>2018 January</b> .....	<b>2.06</b>	<b>11.45</b>	<b>16.07</b>	<b>2.38</b>	<b>11.95</b>	<b>5.06</b>	<b>3.59</b>
February .....	2.07	11.46	15.19	2.43	8.61	3.61	2.82
March .....	2.04	12.10	15.02	2.54	8.00	3.18	2.59
April .....	2.07	12.20	16.19	2.56	8.35	3.14	2.61
May .....	2.04	12.83	16.73	2.41	10.61	3.06	2.59
June .....	2.04	13.81	16.59	2.73	9.50	3.13	2.64
July .....	2.05	13.76	16.21	2.71	8.40	3.23	2.73
August .....	2.06	14.38	16.93	2.79	8.48	3.28	2.72
September .....	2.05	13.91	17.39	2.94	9.06	3.12	2.65
October .....	2.04	14.52	17.76	2.48	10.61	3.43	2.76
November .....	2.06	15.25	16.39	2.21	9.91	4.18	3.05
December .....	2.11	13.56	14.54	2.03	9.51	4.72	3.29
<b>Average</b> .....	<b>2.06</b>	<b>12.97</b>	<b>16.16</b>	<b>2.54</b>	<b>9.68</b>	<b>3.55</b>	<b>2.83</b>
<b>2019 January</b> .....	<b>2.10</b>	<b>11.29</b>	<b>14.12</b>	<b>2.08</b>	<b>8.40</b>	<b>4.01</b>	<b>2.99</b>
February .....	2.07	12.27	15.12	2.27	9.46	3.64	2.85
March .....	2.08	13.68	15.70	2.43	10.43	3.45	2.79
April .....	2.07	13.89	16.38	2.71	11.05	2.89	2.49
May .....	2.06	13.47	16.18	2.24	9.42	2.77	2.43
June .....	2.03	12.92	14.87	2.18	9.57	2.59	2.36
July .....	2.02	12.93	15.10	2.01	7.94	2.53	2.33
August .....	2.00	13.72	14.83	1.72	6.88	2.41	2.25
September .....	1.96	11.53	15.11	1.67	9.15	2.59	2.33
October .....	1.96	12.65	15.38	1.57	10.51	2.49	2.27
November .....	1.97	12.04	15.29	1.46	7.65	2.96	2.48
December .....	1.92	12.84	14.63	1.14	8.54	2.92	2.46
<b>Average</b> .....	<b>2.02</b>	<b>12.66</b>	<b>15.19</b>	<b>1.91</b>	<b>8.98</b>	<b>2.89</b>	<b>2.49</b>
<b>2020 January</b> .....	<b>1.94</b>	<b>13.15</b>	<b>14.57</b>	<b>1.53</b>	<b>6.32</b>	<b>2.62</b>	<b>2.33</b>
February .....	1.91	12.68	13.81	1.47	7.12	2.40	2.22
March .....	1.94	10.29	10.81	1.36	6.62	2.14	2.09
April .....	1.93	8.19	8.86	1.38	4.54	2.10	2.04
May .....	1.90	5.69	7.38	1.61	4.29	2.17	2.08
June .....	1.91	6.25	8.97	1.46	4.61	2.01	1.99
<b>6-Month Average</b> .....	<b>1.92</b>	<b>9.41</b>	<b>10.62</b>	<b>1.48</b>	<b>5.66</b>	<b>2.24</b>	<b>2.13</b>
<b>2019 6-Month Average</b> .....	<b>2.07</b>	<b>12.84</b>	<b>15.33</b>	<b>2.29</b>	<b>9.64</b>	<b>3.21</b>	<b>2.65</b>
<b>2018 6-Month Average</b> .....	<b>2.05</b>	<b>12.09</b>	<b>15.99</b>	<b>2.52</b>	<b>9.97</b>	<b>3.52</b>	<b>2.81</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.

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

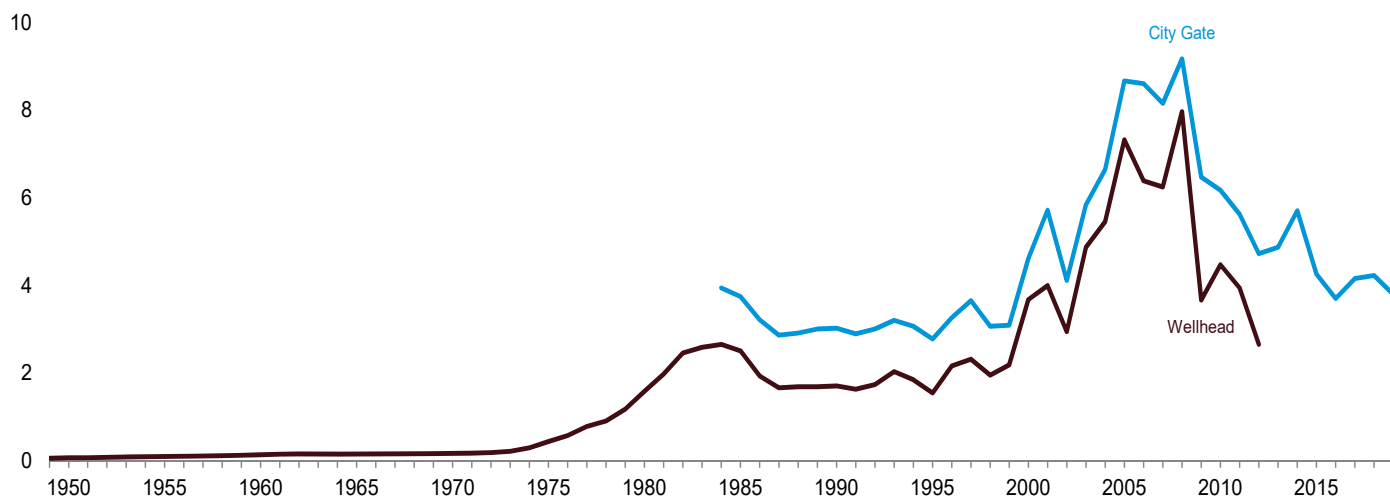
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#prices> (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

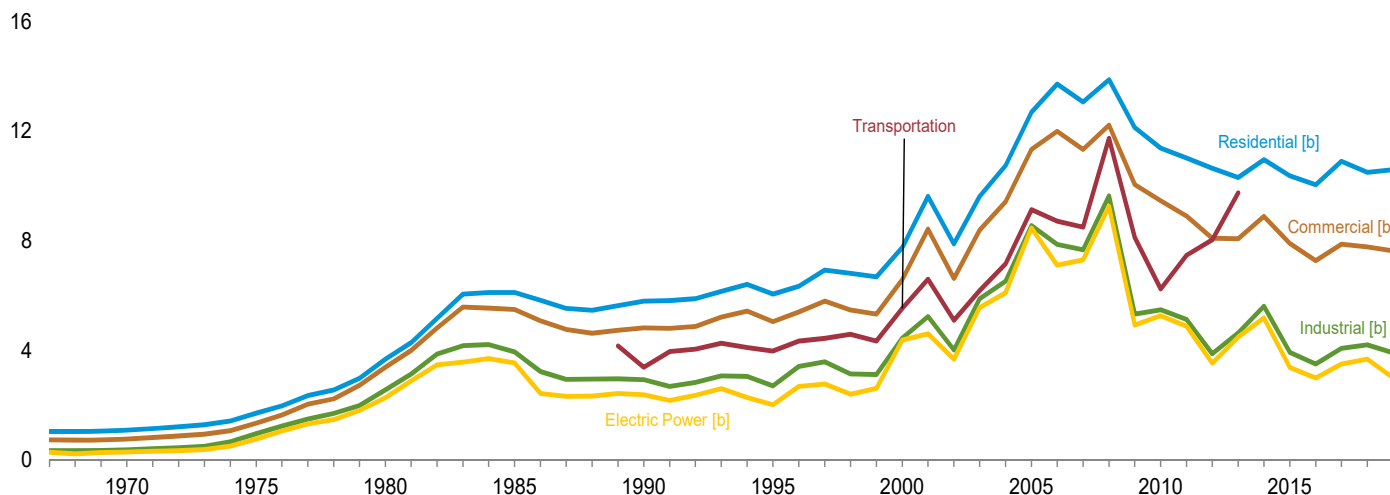
**Figure 9.4 Natural Gas Prices**

(Dollars [a] per Thousand Cubic Feet)

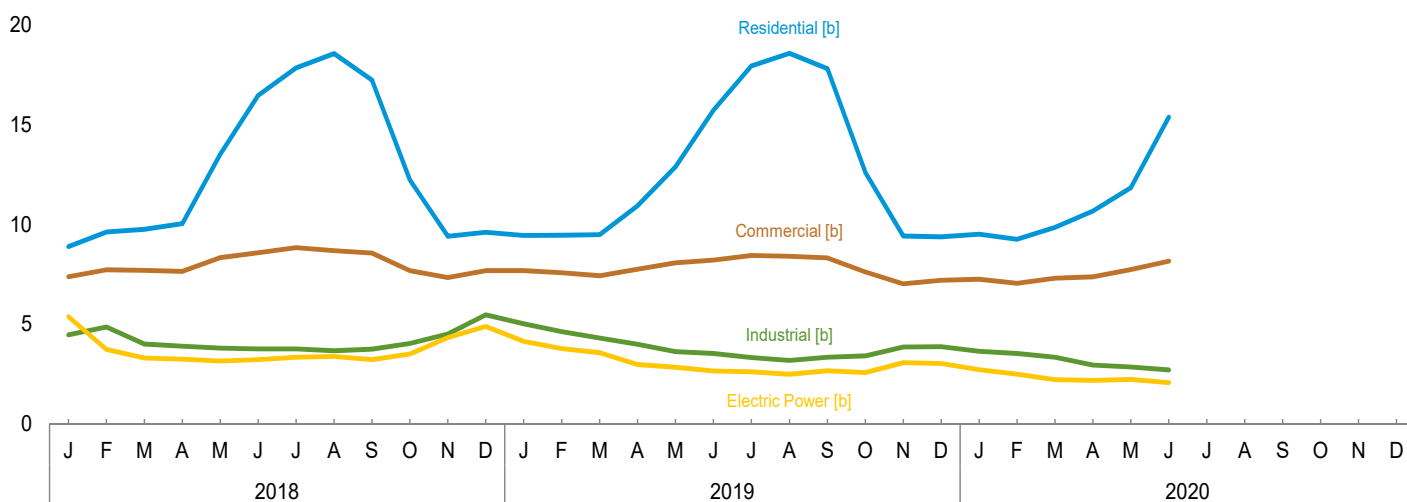
Wellhead and Citygate, 1949–2019



Consuming Sectors, 1967–2019



Consuming Sectors, Monthly



[a] Prices are not adjusted for inflation. See “Nominal Dollars” in Glossary.  
[b] Includes taxes.

Web Page: <http://www.eia.gov/totalenergy/data/monthly/#prices>.  
Source: Table 9.10.

**Table 9.10 Natural Gas Prices**  
(Dollars<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 <sup>j</sup> Price <sup>h</sup>	Price <sup>h</sup>	Percentage of Sector <sup>i,k</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 Average .....	NA	5.71	10.97	95.5	8.90	65.8	5.62	15.9	NA	5.19	94.6
2015 Average .....	NA	4.26	10.38	95.6	7.91	65.7	3.93	14.8	NA	3.38	94.6
2016 Average .....	NA	3.71	10.05	95.8	7.28	64.8	3.51	14.9	NA	2.99	95.6
2017 Average .....	NA	4.16	10.91	95.9	7.88	65.4	4.08	14.8	NA	3.51	95.4
2018 January .....	NA	4.36	8.90	96.1	7.39	71.4	4.48	15.0	NA	5.38	94.4
February .....	NA	3.99	9.63	96.0	7.74	69.2	4.87	14.6	NA	3.75	94.4
March .....	NA	3.69	9.76	95.9	7.71	68.5	4.02	15.1	NA	3.32	95.1
April .....	NA	3.65	10.05	95.6	7.65	65.4	3.91	14.8	NA	3.26	95.9
May .....	NA	4.14	13.52	94.8	8.34	60.0	3.81	13.9	NA	3.16	94.8
June .....	NA	4.49	16.47	95.7	8.58	57.7	3.78	13.8	NA	3.23	96.3
July .....	NA	4.50	17.84	95.8	8.84	56.3	3.77	13.6	NA	3.35	95.2
August .....	NA	5.25	18.56	95.6	8.69	55.1	3.68	13.9	NA	3.39	95.8
September .....	NA	4.72	17.23	96.2	8.57	56.8	3.76	13.8	NA	3.23	96.2
October .....	NA	4.10	12.23	96.5	7.69	61.2	4.04	14.1	NA	3.52	96.4
November .....	NA	4.28	9.41	96.4	7.34	66.6	4.52	14.2	NA	4.34	94.6
December .....	NA	4.72	9.61	96.2	7.70	69.0	5.48	14.3	NA	4.89	95.6
Average .....	NA	4.23	10.50	96.0	7.78	65.8	4.21	14.3	NA	3.68	95.4
2019 January .....	NA	4.04	9.45	96.3	7.70	70.4	5.03	13.6	NA	4.16	90.7
February .....	NA	3.85	9.47	96.1	7.58	69.6	4.64	14.0	NA	3.79	89.7
March .....	NA	4.01	9.49	96.0	7.44	69.4	4.32	13.6	NA	3.59	89.7
April .....	NA	3.68	10.94	95.6	7.76	64.5	4.00	12.9	NA	2.99	88.4
May .....	NA	3.65	12.88	95.7	8.08	61.1	3.64	12.5	NA	2.85	90.4
June .....	NA	4.05	15.72	95.6	8.22	58.9	3.55	12.3	NA	2.67	88.6
July .....	NA	4.16	17.94	95.9	8.45	56.4	3.34	12.9	NA	2.62	86.0
August .....	NA	4.20	18.58	96.0	8.41	56.0	3.20	12.2	NA	2.50	86.2
September .....	NA	4.13	17.81	96.2	8.33	56.6	3.35	12.1	NA	2.68	87.3
October .....	NA	3.40	12.62	96.8	7.63	60.5	3.43	11.9	NA	2.58	87.3
November .....	NA	3.44	9.42	96.6	7.03	66.4	3.87	12.6	NA	3.08	89.7
December .....	NA	3.49	9.38	96.4	7.21	68.6	3.88	12.8	NA	3.05	90.7
Average .....	NA	3.80	10.60	96.2	7.64	65.7	3.91	12.8	NA	2.99	88.5
2020 January .....	NA	3.27	9.52	96.4	7.26	69.6	3.66	13.1	NA	2.74	89.6
February .....	NA	3.09	9.26	96.3	7.06	69.0	3.54	13.2	NA	2.50	89.9
March .....	NA	3.23	9.86	96.1	7.32	66.8	3.35	13.0	NA	2.23	88.8
April .....	NA	3.06	10.68	95.9	7.38	64.0	2.97	12.7	NA	2.20	89.7
May .....	NA	3.35	11.85	95.7	7.75	59.2	2.87	13.1	NA	2.25	89.8
June .....	NA	3.85	15.37	95.9	8.17	56.9	2.72	12.8	NA	2.09	88.2
6-Month Average .....	NA	3.22	10.18	96.2	7.34	66.2	3.22	13.0	NA	2.34	89.3
2019 6-Month Average .....	NA	3.92	10.16	96.0	7.69	67.5	4.25	13.2	NA	3.33	89.6
2018 6-Month Average .....	NA	4.03	10.03	95.9	7.73	67.4	4.16	14.6	NA	3.67	95.2

<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.

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.

**Note 1. Crude Oil Refinery Acquisition Costs.** Beginning with January 1981, refiner acquisition costs of crude oil are from data collected on U.S. Energy Information Administration (EIA) Form EIA-14, "Refiners' Monthly Cost Report." Those costs were previously published from data collected on Economic Regulatory Administration (ERA) Form ERA-49, "Domestic Crude Oil Entitlements Program Refiners Monthly Report." Form ERA-49 was discontinued with the decontrol of crude oil on January 28, 1981. Crude oil purchases and costs are defined for Form EIA-14 in accordance with conventions used for Form ERA-49. The respondents for the two forms are also essentially the same. However, due to possible different interpretations of the filing requirements and a different method for handling prior period adjustments, care must be taken when comparing the data collected on the two forms.

The refiner acquisition cost of crude oil is the average price paid by refiners for crude oil booked into their refineries in accordance with accounting procedures generally accepted and consistently and historically applied by the refiners concerned. Domestic crude oil is that oil produced in the United States or from the outer continental shelf as defined in 43 USC Section 1331. Imported crude oil is either that oil reported on Form ERA-51, "Transfer Pricing Report," or any crude oil that is not domestic oil. The composite cost is the weighted average of domestic and imported crude oil costs.

Crude oil costs and volumes reported on Form ERA-49 excluded unfinished oils but included the Strategic Petroleum Reserve (SPR). Crude oil costs and volumes reported on Federal Energy Administration (FEA) Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report," included unfinished oils but excluded SPR. Imported averages derived from Form ERA-49 exclude oil purchased for SPR, whereas the composite averages derived from Form ERA-49 include SPR. None of the prices derived from Form EIA-14 include either unfinished oils or SPR.

**Note 2. Crude Oil Domestic First Purchase Prices.** The average domestic first purchase price represents the average price at which all domestic crude oil is purchased. Crude oil domestic first purchase prices were derived as follows: for 1949–1973, weighted average domestic first purchase values as reported by state agencies and calculated by the Bureau of Mines; for 1974 and 1975, weighted averages of a sample survey of major first purchasers' purchases; for 1976 forward, weighted averages of all first purchasers' purchases. The data series was previously called "Actual Domestic Wellhead Price."

**Note 3. Crude Oil F.O.B. Costs.** F.O.B. literally means "Free on Board." It denotes a transaction whereby the seller makes the product available with an agreement on a given port at a given price; it is the responsibility of the buyer to arrange for the transportation and insurance.

**Note 4. Crude Oil Landed Costs.** The landed cost of imported crude oil from selected countries does not represent the total cost of all imported crude. Prior to April 1975, imported crude costs to U.S. company-owned refineries in the Caribbean were not included in the landed cost, and costs of crude oil from countries that export only small amounts to the United States were also excluded. Beginning in April 1975, however, coverage was expanded to include U.S. company-owned refineries in the Caribbean. Landed costs do not include supplemental fees.

**Note 5. Motor Gasoline Prices.** Several different series of motor gasoline prices are published in this section. U.S. city average retail prices of motor gasoline by grade are calculated monthly by the Bureau of Labor Statistics during the development of the Consumer Price Index (CPI). These prices include all federal, state, and local taxes paid at the time of sale. Prior to 1977, prices were collected in 56 urban areas. From 1978 forward, prices are collected from a new sample of service stations in 85 urban areas selected to represent all urban consumers—about 80 percent of the total U.S. population. The service stations are selected initially, and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full-, mini-, and self-serve).

Regular motor gasoline prices by area type are determined by EIA in a weekly survey of retail motor gasoline outlets (Form EIA-878, "Motor Gasoline Price Survey"). Prices include all federal, state, and local taxes paid at the time of sale. A representative sample of outlets by geographic area and size is randomly selected from a sampling frame of approximately 115,000 retail motor gasoline outlets. Monthly and annual prices are simple averages of weighted

weekly estimates from "Weekly U.S. Retail Gasoline Prices, Regular Grade." For more information on the survey methodology, see EIA, *Weekly Petroleum Status Report*, Appendix B, "Weekly Petroleum Price Surveys" section.

Refiner prices of finished motor gasoline for resale and to end users are determined by EIA in a monthly survey of refiners and gas plant operators (Form EIA-782A). The prices do not include any federal, state, or local taxes paid at the time of sale. Estimates of prices prior to January 1983 are based on Form FEA-P302-M-1/EIA-460, "Petroleum Industry Monthly Report for Product Prices," and also exclude all federal, state, or local taxes paid at the time of sale. Sales for resale are those made to purchasers who are other-than-ultimate consumers. Sales to end users are sales made directly to the consumer of the product, including bulk consumers (such as agriculture, industry, and utilities) and residential and commercial consumers.

**Note 6. Historical Petroleum Prices.** Starting in January 1983, Form EIA-782, "Monthly Petroleum Product Sales Report," replaced 10 previous surveys. Every attempt was made to continue the most important price series. However, prices published through December 1982 and those published since January 1983 do not necessarily form continuous data series due to changes in survey forms, definitions, instructions, populations, samples, processing systems, and statistical procedures. To provide historical data, continuous series were generated for annual data 1978–1982 and for monthly data 1981 and 1982 by estimating the prices that would have been published had Form EIA-782 survey and system been in operation at that time. This form of estimation was performed after detailed adjustment was made for product and sales type matching and for discontinuity due to other factors. An important difference between the previous and present prices is the distinction between wholesale and resale and between retail and end user. The resale category continues to include sales among resellers. However, sales to bulk consumers, such as utility, industrial, and commercial accounts previously included in the wholesale category, are now counted as made to end users. The end-user category continues to include retail sales through company-owned and operated outlets but also includes sales to the bulk consumers such as agriculture, industry, and electric utilities. Additional information may be found in "Estimated Historic Time Series for the EIA-782," a feature article by Paula Weir, printed in the December 1983 [3] *Petroleum Marketing Monthly*, published by EIA.

**Note 7. Electricity Retail Prices.** Average annual retail prices of electricity have the following plant coverage: Through 1979, annual data are for Classes A and B privately owned electric utilities only. For 1980–1982, annual data are for selected Class A utilities whose electric operating revenues were \$100 million or more during the previous year. For 1983, annual data are for a selected sample of electric utilities. Beginning in 1984, data are for a census of electric utilities. Beginning in 1996, annual data also include energy service providers selling to retail customers.

Average monthly retail prices of electricity have the following plant coverage: Through 1985, monthly data are derived from selected privately owned electric utilities and, therefore, are not national averages. Beginning in 1986, monthly data are based on a sample of publicly and privately owned electric utilities. Beginning in 1996, monthly data also include energy service providers selling to retail customers.

Preliminary monthly data are from Form EIA-861M (formerly Form EIA-826), "Monthly Electric Power Industry Report," which is a monthly collection of data from approximately 450 of the largest publicly and privately owned electric utilities as well as a census of energy service providers with retail sales in deregulated states; a model is then applied to the collected data to estimate for the entire universe of U.S. electric utilities. Preliminary annual data are the sum of the monthly revenues divided by the sum of the monthly sales. When final annual data become available each year from Form EIA-861, "Annual Electric Power Industry Report," their ratios to the preliminary Form EIA-861M values are used to derive adjusted final monthly values.

**Note 8. Natural Gas Prices.** Natural gas prices are intended to include all taxes. Instructions on the data collection forms specifically direct that all federal, state, and local taxes, surcharges, and/or adjustments billed to consumers are to be included. However, sales and other taxes itemized on more than 3,000 consumers' bills are sometimes excluded by the reporting utilities. Delivered-to-consumers prices for 1987 forward represent natural gas delivered and sold to residential, commercial, industrial, vehicle fuel, and electric power consumers. They do not include the price of natural

gas delivered on behalf of third parties to residential, commercial, industrial, and vehicle fuel customers except for certain states in the residential and commercial sectors for 2002 forward. Volumes of natural gas delivered on behalf of third parties are included in the consumption data shown in Table 4.3. Additional information is available in EIA, *Natural Gas Monthly*, Appendix C.

## Table 9.1 Sources

### *Domestic First Purchase Price*

1949–1976: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter.

1977: Federal Energy Administration, based on Form FEA-P124, "Domestic Crude Oil Purchaser's Monthly Report."

1978–2009: U.S. Energy Information Administration (EIA), *Petroleum Marketing Annual* 2009, Table 1.

2010 forward: EIA, *Petroleum Marketing Monthly* September 2020, 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*, September 2020, 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*, September 2020, 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*, September 2020, 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*, June 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*, August 2020, Table 4.1; and Form EIA-923, "Power Plant Operations Report."

## Table 9.10 Sources

### *All Prices Except Vehicle Fuel and Electric Power*

1949–2015: U.S. Energy Information Administration (EIA), *Natural Gas Annual* (NGA), annual reports and unpublished revisions.

2016 forward: EIA, *Natural Gas Monthly* (NGM), August 2020, Table 3.

### *Vehicle Fuel Price*

1989–2013: 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, November 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*

1987–2015: 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.

2016 forward: EIA, NGM, August 2020, Table 3.

### ***Percentage of Industrial Sector***

1982–2015: 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.

2016 forward: EIA, NGM, August 2020, 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).



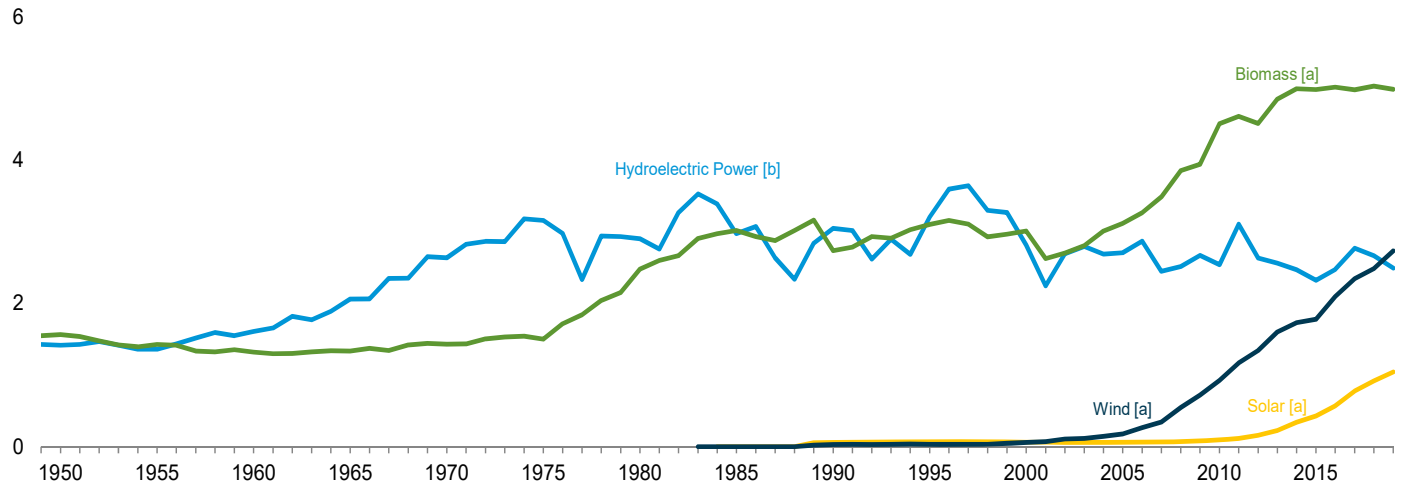
# 10. Renewable Energy

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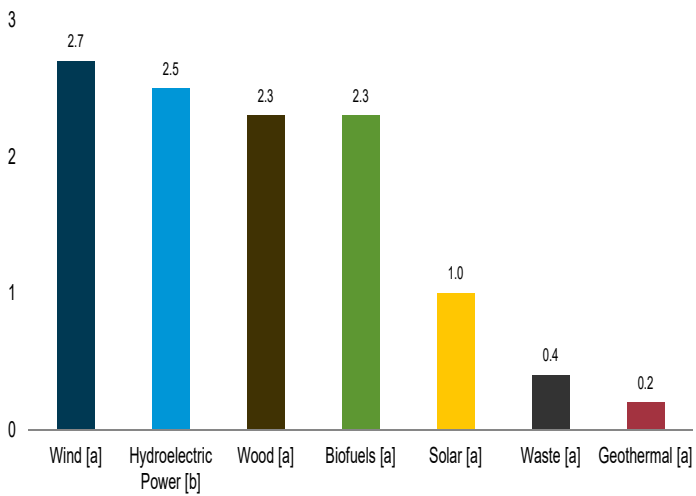
**Figure 10.1 Renewable Energy Consumption**

(Quadrillion Btu)

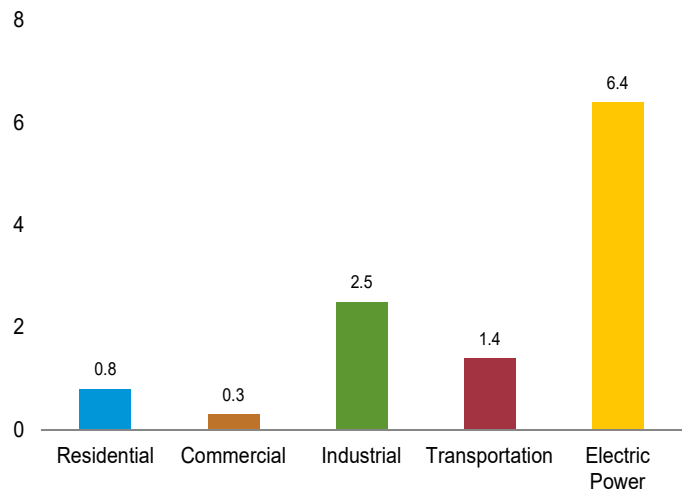
Major Sources, 1949–2019



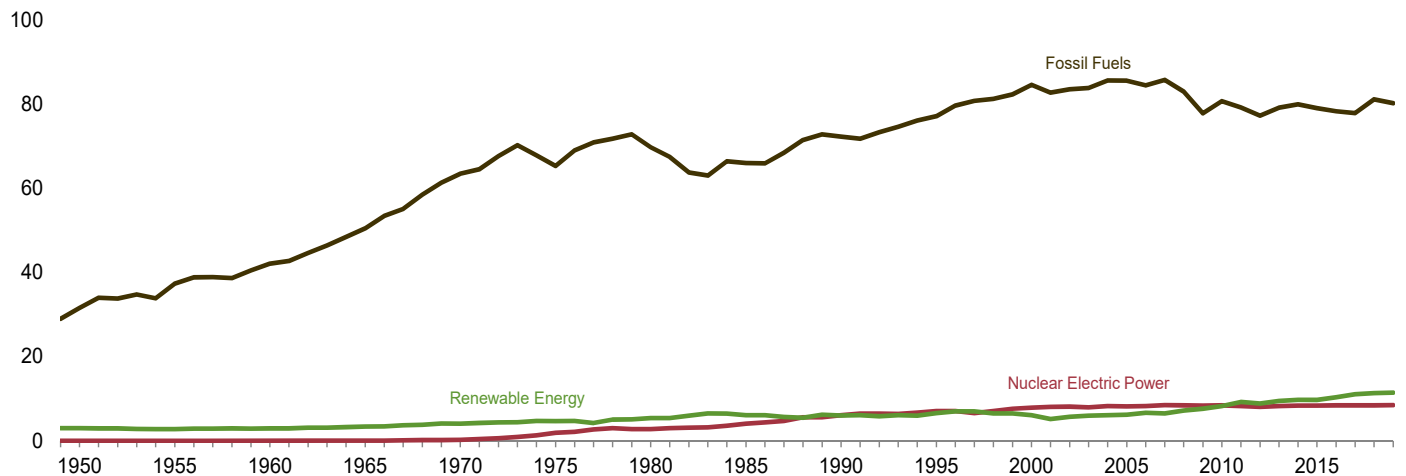
By Source, 2019



By Sector, 2019



Compared With Other Resources, 1949–2019



[a] See Table 10.1 for definition.

[b] Conventional hydroelectric power.

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

Sources: Tables 1.3 and 10.1–10.2c.

**Table 10.1 Renewable Energy Production and Consumption by Source**  
(Trillion Btu)

	Production <sup>a</sup>				Consumption								
	Biomass			Total Renewable Energy <sup>e</sup>	Hydroelectric Power <sup>f</sup>	Geothermal <sup>g</sup>	Solar <sup>h</sup>	Wind <sup>i</sup>	Biomass				Total Renewable Energy
	Wood <sup>b</sup>	Bio-fuels <sup>c</sup>	Total <sup>d</sup>						Wood <sup>j</sup>	Waste <sup>k</sup>	Bio-fuels <sup>l</sup>	Total	
1950 Total	1,562	NA	1,562	2,978	1,415	NA	NA	NA	1,562	NA	NA	1,562	2,978
1955 Total	1,424	NA	1,424	2,784	1,360	NA	NA	NA	1,424	NA	NA	1,424	2,784
1960 Total	1,320	NA	1,320	2,928	1,608	(s)	NA	NA	1,320	NA	NA	1,320	2,928
1965 Total	1,335	NA	1,335	3,396	2,059	2	NA	NA	1,335	NA	NA	1,335	3,396
1970 Total	1,429	NA	1,431	4,070	2,634	6	NA	NA	1,429	2	NA	1,431	4,070
1975 Total	1,497	NA	1,499	4,687	3,155	34	NA	NA	1,497	2	NA	1,499	4,687
1980 Total	2,474	NA	2,475	5,428	2,900	53	NA	NA	2,474	2	NA	2,475	5,428
1985 Total	2,687	93	3,016	6,084	2,970	97	(s)	(s)	2,687	236	93	3,016	6,084
1990 Total	2,216	111	2,735	6,040	3,046	171	59	29	2,216	408	111	2,735	6,040
1995 Total	2,370	198	3,099	6,557	3,205	152	68	33	2,370	531	200	3,101	6,559
2000 Total	2,262	233	3,006	6,102	2,811	164	63	57	2,262	511	236	3,008	6,104
2001 Total	2,006	254	2,624	5,162	2,242	164	62	70	2,006	364	253	2,622	5,160
2002 Total	1,995	308	2,705	5,731	2,689	171	60	105	1,995	402	303	2,701	5,726
2003 Total	2,002	401	2,805	5,942	2,793	173	58	113	2,002	401	403	2,806	5,944
2004 Total	2,121	486	2,996	6,063	2,688	178	58	142	2,121	389	498	3,008	6,075
2005 Total	2,137	561	3,101	6,221	2,703	181	58	178	2,137	403	574	3,114	6,234
2006 Total	2,099	716	3,212	6,586	2,869	181	61	264	2,099	397	766	3,262	6,637
2007 Total	2,089	970	3,472	6,510	2,446	186	66	341	2,089	413	983	3,485	6,523
2008 Total	2,059	1,374	3,868	7,192	2,511	192	74	546	2,059	435	1,357	3,851	7,175
2009 Total	1,935	1,570	3,957	7,625	2,669	200	78	721	1,935	452	1,553	3,940	7,608
2010 Total	2,217	1,868	4,553	8,314	2,539	208	91	923	2,217	468	1,821	4,506	8,267
2011 Total	2,213	2,029	4,704	9,300	3,103	212	112	1,168	2,213	462	1,934	4,609	9,204
2012 Total	2,151	1,929	4,547	8,886	2,629	212	159	1,340	2,151	467	1,890	4,508	8,847
2013 Total	2,338	1,981	4,816	9,418	2,562	214	225	1,601	2,338	496	2,014	4,848	9,451
2014 Total	2,401	2,103	5,020	9,767	2,467	214	338	1,728	2,401	516	2,077	4,994	9,740
2015 Total	2,312	2,161	4,992	9,729	2,321	212	427	1,777	2,312	518	2,153	4,983	9,721
2016 Total	2,297	2,275	5,075	10,423	2,472	210	570	2,096	2,224	503	2,287	5,015	10,363
2017 Total	2,259	2,344	5,099	11,196	2,767	210	777	2,343	2,181	495	2,304	4,979	11,077
2018 January	202	200	445	972	228	18	49	233	197	43	187	426	954
February	184	184	408	918	227	16	55	211	176	40	166	382	892
March	199	202	443	1,011	235	18	74	241	193	43	192	428	996
April	188	191	420	1,018	256	16	86	241	181	41	181	402	1,001
May	197	202	440	1,049	277	18	96	218	189	41	201	430	1,040
June	195	200	435	1,030	251	17	102	225	186	39	194	419	1,015
July	203	210	452	945	229	18	97	150	196	39	199	435	928
August	203	212	455	949	200	18	95	181	194	40	206	440	934
September	190	194	421	865	174	17	85	169	182	37	182	400	845
October	196	204	441	902	178	17	72	193	187	41	196	423	884
November	193	198	432	905	199	17	56	200	185	41	189	414	887
December	205	200	447	943	208	19	48	221	196	42	191	429	925
Total	2,355	2,397	5,238	11,508	2,663	209	916	2,482	2,261	487	2,283	5,031	11,301
2019 January	209	195	443	965	220	18	54	229	203	38	R 177	R 419	941
February	191	177	R 403	885	199	17	58	209	182	35	R 172	R 390	872
March	200	191	429	1,004	233	18	86	238	192	38	R 186	R 417	991
April	195	193	423	1,040	232	16	98	270	187	35	185	406	1,023
May	201	202	R 439	1,071	274	18	105	236	193	35	199	R 428	1,060
June	197	197	429	1,009	241	18	113	209	188	35	R 194	R 417	997
July	203	203	442	992	216	18	116	201	195	35	R 197	R 427	978
August	211	199	446	948	192	18	112	181	200	36	R 194	R 430	932
September	196	182	412	897	149	18	97	222	187	34	R 179	R 399	884
October	196	192	425	933	148	17	87	256	187	37	R 191	R 415	924
November	196	192	425	924	187	15	64	233	187	37	R 187	R 410	910
December	206	203	448	969	202	17	54	247	196	38	R 194	R 428	949
Total	2,401	R 2,328	5,161	11,637	2,492	209	1,043	2,732	2,297	433	R 2,255	4,985	R 11,461
2020 January	192	203	434	997	221	16	66	259	185	39	187	411	973
February	181	187	404	993	228	15	79	266	173	36	174	383	971
March	189	184	411	995	203	19	94	268	179	38	162	380	963
April	182	113	330	919	189	17	114	269	174	35	112	321	910
May	R 191	137	R 363	R 1,040	268	18	134	257	183	36	146	364	1,041
June	179	164	375	1,059	261	17	132	274	170	33	167	369	1,053
6-Month Total	1,114	988	2,318	6,002	1,370	102	619	1,593	1,063	216	948	2,228	5,912
2019 6-Month Total	1,192	1,156	2,565	5,973	1,398	105	513	1,392	1,145	217	1,113	2,475	5,884
2018 6-Month Total	1,165	1,178	2,590	5,999	1,475	103	462	1,369	1,122	247	1,120	2,489	5,897

<sup>a</sup> For hydroelectric power, geothermal, solar, wind, and biomass waste, production equals consumption.

<sup>b</sup> Wood and wood-derived fuels. Through 2015, wood production equals consumption. Beginning in 2016, wood production equals consumption plus densified biomass exports.

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

<sup>d</sup> Includes biomass waste.

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

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

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

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

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

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

Notes: • Production data are estimates. Consumption data are estimates, except for hydroelectric power in 1949–1978 and 1989 forward, and wind. • See Note, "Renewable Energy Production and Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: • **Production:** Tables 10.2a–10.4 and U.S. Energy Information Administration, Form EIA-63C, "Densified Biomass Fuel Report."

• **Consumption:** Tables 10.2a–10.2c.

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

	Residential Sector				Commercial Sector <sup>a</sup>								
	Geo-thermal <sup>b</sup>	Solar <sup>c</sup>	Biomass	Total	Hydro-electric Power <sup>e</sup>	Geo-thermal <sup>f</sup>	Solar <sup>g</sup>	Wind <sup>h</sup>	Biomass				Total
			Wood <sup>d</sup>						Wood <sup>d</sup>	Waste <sup>i</sup>	Fuel Ethanol <sup>j,k</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	53	380	451	1	14	3	—	65	36	1	103	120
2007 Total .....	22	55	420	497	1	14	4	—	70	31	2	103	122
2008 Total .....	26	58	470	555	1	15	6	—	73	34	2	109	131
2009 Total .....	33	60	504	597	1	17	8	(s)	73	36	3	112	137
2010 Total .....	37	65	541	642	1	19	12	(s)	72	36	3	111	142
2011 Total .....	40	71	524	635	(s)	20	20	(s)	69	43	3	115	155
2012 Total .....	40	79	438	557	(s)	20	33	1	61	45	3	108	162
2013 Total .....	40	91	572	703	(s)	20	41	1	70	47	3	120	182
2014 Total .....	40	110	579	728	(s)	20	52	1	76	47	4	127	200
2015 Total .....	40	128	513	681	(s)	20	57	1	79	47	<sup>k</sup> 26	152	230
2016 Total .....	40	162	442	643	2	20	62	1	84	48	26	158	242
2017 Total .....	40	194	425	658	2	20	76	1	84	48	25	156	255
2018 January .....	3	12	44	59	(s)	2	5	(s)	7	4	2	13	21
February .....	3	13	40	56	(s)	2	6	(s)	7	4	2	12	20
March .....	3	18	44	65	(s)	2	8	(s)	7	4	2	13	23
April .....	3	21	43	66	(s)	2	9	(s)	7	4	2	13	23
May .....	3	23	44	70	(s)	2	10	(s)	7	4	2	13	25
June .....	3	23	43	69	(s)	2	10	(s)	7	4	2	13	25
July .....	3	24	44	71	(s)	2	10	(s)	7	4	2	13	25
August .....	3	23	44	70	(s)	2	10	(s)	7	4	2	14	25
September .....	3	20	43	66	(s)	2	9	(s)	7	4	2	12	23
October .....	3	18	44	65	(s)	2	8	(s)	7	4	2	13	23
November .....	3	14	43	60	(s)	2	6	(s)	7	4	2	13	21
December .....	3	13	44	61	(s)	2	6	(s)	7	4	2	13	21
Total .....	40	221	517	778	2	20	94	2	84	47	25	156	274
2019 January .....	3	14	45	62	NM	2	6	(s)	7	4	2	13	21
February .....	3	15	41	58	NM	2	6	(s)	7	3	2	12	20
March .....	3	21	45	70	NM	2	9	(s)	7	3	2	13	24
April .....	3	24	43	70	NM	2	10	(s)	7	3	2	12	24
May .....	3	26	45	74	NM	2	11	(s)	7	3	2	12	25
June .....	3	27	43	73	(s)	2	11	(s)	7	3	2	12	25
July .....	3	28	45	76	NM	2	11	(s)	7	3	2	12	26
August .....	3	27	45	75	NM	2	11	(s)	7	3	2	12	25
September .....	3	24	43	70	NM	2	10	(s)	7	3	2	12	24
October .....	3	21	45	69	NM	2	9	(s)	7	3	2	12	23
November .....	3	16	43	63	NM	2	7	(s)	7	3	2	12	21
December .....	3	15	45	63	(s)	2	6	(s)	7	3	2	12	21
Total .....	40	257	529	825	2	24	107	2	84	36	26	146	280
2020 January .....	3	16	42	62	NM	2	7	(s)	7	3	2	12	21
February .....	3	18	39	61	NM	2	8	(s)	7	3	2	12	21
March .....	3	24	42	70	(s)	2	10	(s)	7	3	2	12	24
April .....	3	27	41	71	(s)	2	11	(s)	7	3	1	11	24
May .....	3	30	42	76	(s)	2	13	(s)	7	3	2	11	26
June .....	3	30	41	74	(s)	2	13	(s)	7	3	2	12	26
6-Month Total .....	20	146	248	413	1	10	62	1	42	17	11	70	143
2019 6-Month Total .....	20	126	262	408	1	12	53	1	42	18	13	73	140
2018 6-Month Total .....	20	109	257	386	1	10	47	1	42	24	12	78	136

<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 total 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> Geothermal heat pump and direct use energy. Beginning in December 2018, also includes geothermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

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

<sup>k</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. NM=Not meaningful. —=No data reported. (s)=Less than 0.5 trillion Btu.

Notes: • Residential sector data are estimates. Commercial sector data are estimates, except for hydroelectric power, wind, and biomass 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>l,k</sup>	Bio-diesel <sup>l</sup>	Other <sup>m</sup>	Total
1950 Total	69	NA	NA	NA	532	NA	NA	NA	532	602	NA	NA	NA	NA
1955 Total	38	NA	NA	NA	631	NA	NA	NA	631	669	NA	NA	NA	NA
1960 Total	39	NA	NA	NA	680	NA	NA	NA	680	719	NA	NA	NA	NA
1965 Total	33	NA	NA	NA	855	NA	NA	NA	855	888	NA	NA	NA	NA
1970 Total	34	NA	NA	NA	1,019	NA	NA	NA	1,019	1,053	NA	NA	NA	NA
1975 Total	32	NA	NA	NA	1,063	NA	NA	NA	1,063	1,096	NA	NA	NA	NA
1980 Total	33	NA	NA	NA	1,600	NA	NA	NA	1,600	1,633	NA	NA	NA	NA
1985 Total	33	NA	NA	NA	1,645	230	1	42	1,918	1,951	50	NA	NA	50
1990 Total	31	2	(s)	—	1,442	192	1	49	1,684	1,717	60	NA	NA	60
1995 Total	55	3	(s)	—	1,652	195	2	86	1,934	1,992	112	NA	NA	112
2000 Total	42	4	(s)	—	1,636	145	1	99	1,881	1,928	135	NA	NA	135
2001 Total	33	5	(s)	—	1,443	129	3	108	1,681	1,719	141	1	NA	142
2002 Total	39	5	(s)	—	1,396	146	3	130	1,676	1,720	168	2	NA	170
2003 Total	43	3	(s)	—	1,363	142	4	168	1,678	1,725	228	2	NA	230
2004 Total	33	4	(s)	—	1,476	132	6	201	1,815	1,852	286	3	NA	290
2005 Total	32	4	(s)	—	1,452	148	7	227	1,834	1,871	327	12	NA	339
2006 Total	29	4	1	—	1,472	130	10	280	1,892	1,926	442	33	NA	475
2007 Total	16	5	1	—	1,413	145	10	369	1,937	1,958	557	45	NA	602
2008 Total	17	5	1	—	1,339	143	12	519	2,012	2,035	786	39	NA	825
2009 Total	18	4	2	—	1,178	154	13	603	1,948	1,972	894	41	—	935
2010 Total	16	4	3	—	1,409	168	17	727	2,320	2,343	1,041	33	(s)	1,075
2011 Total	17	4	4	(s)	1,438	165	17	756	2,375	2,401	1,045	113	1	1,159
2012 Total	22	4	7	(s)	1,462	159	17	711	2,349	2,383	1,045	115	1	1,160
2013 Total	33	4	9	(s)	1,489	187	18	709	2,403	2,449	1,072	182	30	1,284
2014 Total	12	4	11	1	1,495	190	14	757	2,456	2,484	1,093	181	28	1,302
2015 Total	13	4	14	(s)	1,476	190	18	776	2,460	2,491	1,110	191	33	1,334
2016 Total	12	4	19	1	1,474	174	18	801	2,467	2,503	1,143	266	34	1,443
2017 Total	13	4	22	1	1,442	168	18	821	2,450	2,490	1,156	253	30	1,439
2018 January	1	(s)	1	(s)	124	15	2	70	211	213	96	15	1	113
February	1	(s)	1	(s)	111	14	1	64	190	193	82	15	2	99
March	1	(s)	2	(s)	122	15	2	70	208	211	96	20	3	119
April	1	(s)	2	(s)	115	14	1	66	197	200	90	20	2	112
May	1	(s)	2	(s)	121	14	2	70	206	210	104	21	2	127
June	1	(s)	2	(s)	118	12	2	69	200	204	98	23	1	121
July	1	(s)	3	(s)	124	13	2	72	210	214	101	21	1	124
August	1	(s)	2	(s)	123	13	2	73	211	214	104	24	1	129
September	1	(s)	2	(s)	115	12	1	66	195	199	90	22	1	113
October	1	(s)	2	(s)	119	14	2	70	205	208	99	22	1	122
November	1	(s)	2	(s)	118	14	2	68	202	205	95	20	2	117
December	1	(s)	1	(s)	127	15	2	68	212	215	97	21	2	119
Total	10	4	24	1	1,438	165	19	824	2,446	2,486	1,152	243	19	1,415
2019 January	1	(s)	2	(s)	131	15	1	67	214	217	R 89	16	2	R 107
February	1	(s)	2	(s)	119	13	1	61	194	197	R 90	17	R 1	R 108
March	1	(s)	2	(s)	124	14	2	66	205	209	R 95	20	R 1	R 117
April	1	(s)	3	(s)	121	13	2	66	201	205	R 94	20	2	115
May	1	(s)	3	(s)	122	13	2	69	206	210	R 103	22	2	126
June	1	(s)	3	(s)	120	13	2	68	202	207	R 100	20	2	122
July	1	(s)	3	(s)	124	12	2	69	207	212	R 100	R 22	2	R 124
August	1	(s)	3	(s)	127	13	2	68	209	213	R 100	R 21	2	R 122
September	1	(s)	3	(s)	118	12	2	62	194	197	R 93	19	1	113
October	1	(s)	2	(s)	120	14	2	66	202	205	101	19	1	121
November	1	(s)	2	(s)	122	14	2	67	204	207	R 99	R 17	R (s)	R 116
December	1	(s)	2	(s)	126	15	2	71	213	216	98	19	R 2	R 119
Total	10	4	28	1	1,473	160	19	R 800	R 2,452	2,495	R 1,162	231	R 18	R 1,411
2020 January	1	(s)	2	(s)	119	15	2	70	206	209	95	17	2	113
February	1	(s)	2	(s)	110	14	1	64	190	193	86	19	1	106
March	1	(s)	3	(s)	114	14	1	62	192	196	78	18	1	97
April	1	(s)	3	(s)	112	14	1	36	163	167	53	19	3	75
May	1	(s)	3	(s)	118	14	1	44	177	182	78	19	1	98
June	1	(s)	3	1	107	12	1	55	175	180	89	19	1	109
6-Month Total	5	2	16	1	680	83	8	332	1,102	1,127	479	111	9	598
2019 6-Month Total	5	2	14	1	736	81	9	397	1,223	1,245	571	115	9	695
2018 6-Month Total	5	2	12	(s)	711	84	9	408	1,212	1,231	565	114	11	690

<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> Other renewable diesel fuel and other renewable fuels consumption. See "Renewable Diesel Fuel (Other)" and "Renewable Fuels (Other)" in Glossary.

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

Notes: • Industrial sector data are estimates, except for hydroelectric power in 1949–1978 and 1989 forward, and wind. Transportation sector data are estimates, except for biodiesel beginning in 2012. • 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>9</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 Total .....	2,454	151	165	1,726	251	279	530	5,026
2015 Total .....	2,308	148	228	1,776	244	281	525	4,985
2016 Total .....	2,459	146	328	2,094	224	281	505	5,531
2017 Total .....	2,752	147	486	2,341	229	280	510	6,235
2018 January .....	227	12	30	233	21	24	46	548
February .....	226	12	35	211	19	23	42	525
March .....	234	12	46	241	20	24	44	577
April .....	255	11	55	240	16	23	39	599
May .....	276	13	62	218	17	23	40	608
June .....	250	12	67	225	19	23	42	596
July .....	228	12	61	150	21	23	44	494
August .....	199	12	60	181	20	23	43	496
September .....	174	12	54	168	17	21	37	445
October .....	177	12	45	193	17	23	39	465
November .....	198	12	34	200	17	23	40	484
December .....	206	13	28	221	18	23	41	509
Total .....	2,651	145	576	2,480	221	275	496	6,348
2019 January .....	219	13	33	228	20	20	40	533
February .....	198	12	35	209	17	18	35	488
March .....	231	13	53	238	17	21	37	572
April .....	231	11	62	270	16	19	35	609
May .....	273	12	65	236	19	20	39	624
June .....	240	12	72	209	17	19	37	570
July .....	215	13	74	200	19	20	39	541
August .....	191	13	71	181	21	20	41	496
September .....	148	12	61	222	18	19	37	480
October .....	147	11	55	256	15	20	35	505
November .....	186	10	39	233	15	20	34	502
December .....	201	11	32	247	18	20	39	530
Total .....	2,480	142	651	2,729	211	236	448	6,450
2020 January .....	220	11	41	258	17	21	38	568
February .....	227	10	51	266	17	19	36	590
March .....	202	13	57	268	16	21	37	576
April .....	188	12	72	269	14	19	33	573
May .....	267	13	88	256	16	19	35	659
June .....	259	12	85	274	15	18	33	663
6-Month Total .....	1,364	71	395	1,591	94	116	210	3,630
2019 6-Month Total .....	1,392	72	319	1,390	105	117	223	3,396
2018 6-Month Total .....	1,469	71	294	1,367	112	140	252	3,454

<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>9</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	822	800
2009 Total .....	1,503	602	5,688	260,424	10,938	928	4,720	16,594	2,368	262,776	11,037	937	910
2010 Total .....	1,823	726	6,506	316,617	13,298	1,128	-9,115	17,941	1,347	306,155	12,858	1,091	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	1,127	-5,761	16,424	-3,926	314,658	13,216	1,120	1,092
2014 Total .....	1,938	755	6,476	340,781	14,313	1,213	-18,371	18,739	2,315	320,095	13,444	1,139	1,111
2015 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 Total .....	2,072	798	6,920	366,981	15,413	1,306	-27,002	19,758	-1,838	341,817	14,356	1,216	1,187
2017 Total .....	2,138	819	6,657	379,435	15,936	1,349	-31,268	23,043	3,285	344,882	14,485	1,226	1,199
2018 January .....	183	70	506	32,577	1,368	116	-2,522	24,342	1,299	28,756	1,208	102	100
February .....	167	64	443	29,674	1,246	105	-4,838	24,722	380	24,456	1,027	87	85
March .....	182	69	487	32,390	1,360	115	-5,516	23,084	-1,638	28,512	1,198	101	99
April .....	173	66	465	30,680	1,289	109	-3,675	23,379	295	26,710	1,122	95	93
May .....	182	69	490	32,389	1,360	115	-2,262	22,654	-725	30,852	1,296	110	108
June .....	180	68	473	31,924	1,341	113	-3,585	21,877	-777	29,116	1,223	103	102
July .....	188	72	519	33,430	1,404	119	-2,439	22,668	791	30,200	1,268	107	105
August .....	190	72	527	33,773	1,418	120	-2,494	22,824	156	31,123	1,307	111	108
September .....	173	66	471	30,667	1,288	109	-2,313	24,412	1,588	26,766	1,124	95	93
October .....	182	69	450	32,358	1,359	115	-3,614	23,698	-714	29,458	1,237	105	103
November .....	178	68	470	31,529	1,324	112	-3,229	23,618	-80	28,380	1,192	101	99
December .....	178	68	518	31,736	1,333	113	-2,924	23,418	-200	29,012	1,219	103	101
Total .....	2,156	821	5,819	383,127	16,091	1,361	-39,410	23,418	375	343,342	14,420	1,220	1,197
2019 January .....	177	67	R 550	R 31,603	1,327	112	R -3,243	R 25,115	R 1,697	R 26,663	R 1,120	R 95	R 93
February .....	160	61	R 498	R 28,599	R 1,201	102	R -2,283	R 24,506	R -609	R 26,925	R 1,131	R 96	R 94
March .....	173	65	504	R 30,863	R 1,296	110	R -3,653	R 23,396	R -1,110	R 28,320	R 1,189	R 101	R 99
April .....	174	66	462	R 30,981	R 1,301	110	R -3,195	R 23,331	R -65	R 27,851	R 1,170	R 99	R 97
May .....	182	69	471	R 32,466	R 1,364	115	R -2,355	R 22,843	R -488	R 30,599	R 1,285	R 109	R 107
June .....	179	68	505	R 31,898	1,340	113	R -2,340	R 22,583	R -260	R 29,818	R 1,252	R 106	R 104
July .....	182	69	512	32,541	1,367	116	R -2,312	R 22,892	R 309	R 29,920	R 1,257	R 106	R 104
August .....	179	68	513	31,921	1,341	113	R -2,397	R 22,727	R -165	R 29,689	R 1,247	R 106	R 103
September .....	164	62	474	29,232	1,228	104	R -1,237	R 23,012	R 285	R 27,710	R 1,164	R 99	R 96
October .....	173	66	504	30,941	1,300	110	R -1,998	21,784	R -1,228	R 30,171	R 1,267	R 107	R 105
November .....	176	66	536	31,358	1,317	111	R -2,029	R 21,646	R -138	R 29,467	R 1,238	R 105	R 102
December .....	186	71	R 560	33,275	1,398	118	R -3,234	R 22,352	R 706	R 29,335	R 1,232	R 104	R 102
Total .....	2,104	796	R 6,089	R 375,678	R 15,778	R 1,336	R -30,276	R 22,352	R -1,066	R 346,468	R 14,552	R 1,232	R 1,206
2020 January .....	186	70	543	33,343	1,400	119	-3,426	24,047	i 1,698	28,219	1,185	100	98
February .....	170	64	478	30,516	1,282	108	-4,376	24,555	508	25,632	1,077	91	89
March .....	164	62	478	29,406	1,235	105	-3,082	27,501	2,946	23,378	982	83	81
April .....	94	36	311	16,945	712	60	-2,457	26,102	-1,399	15,887	667	56	55
May .....	118	44	382	21,098	886	75	-1,622	22,247	-3,855	23,331	980	83	81
June .....	145	54	472	25,958	1,090	92	-1,883	19,826	-2,421	26,496	1,113	94	92
6-Month Total ...	877	330	2,664	157,266	6,605	559	-16,847	19,826	-2,523	142,942	6,004	508	497
2019 6-Month Total ...	1,044	395	2,990	186,410	7,829	663	-17,069	22,583	-835	170,176	7,147	605	593
2018 6-Month Total ...	1,067	406	2,864	189,634	7,965	674	-22,397	21,877	-1,166	168,403	7,073	598	587

<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 2019 stocks value (22,349 thousand barrels), not the final 2019 value (22,352 thousand barrels) that is shown under "Stocks."

R=Revised. NA=Not available.

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

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

Sources: See end of section.

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

	Biodiesel													Other Renewable Fuels <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	
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	—
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	1
2012 Total .....	128	2	23,588	991	126	853	3,056	-2,203	1,984	-20	21,406	899	115	1
2013 Total .....	176	2	32,368	1,359	173	8,152	4,675	3,477	3,810	1,825	34,020	1,429	182	30
2014 Total .....	165	2	30,452	1,279	163	4,578	1,974	2,604	3,131	-679	33,735	1,417	181	28
2015 Total .....	163	2	30,080	1,263	161	8,399	2,091	6,308	3,943	813	35,575	1,494	191	33
2016 Total .....	203	3	37,327	1,568	200	16,879	2,098	14,781	6,398	2,454	49,653	2,085	266	34
2017 Total .....	206	3	37,993	1,596	204	9,374	2,228	7,146	4,268	-2,130	47,269	1,985	253	30
2018 January .....	16	(s)	2,989	126	16	246	84	162	4,565	297	2,853	120	15	1
February .....	17	(s)	3,046	128	16	146	103	43	4,934	369	2,720	114	15	2
March .....	19	(s)	3,551	149	19	457	257	200	4,925	-9	3,760	158	20	3
April .....	18	(s)	3,393	143	18	308	217	91	4,716	-209	3,693	155	20	2
May .....	20	(s)	3,603	151	19	325	396	-71	4,275	-441	3,972	167	21	2
June .....	21	(s)	3,783	159	20	296	276	20	3,850	-425	4,228	178	23	1
July .....	22	(s)	3,960	166	21	157	259	-102	3,742	-107	3,966	167	21	1
August .....	22	(s)	4,102	172	22	281	263	18	3,425	-318	4,437	186	24	1
September .....	21	(s)	3,914	164	21	277	191	86	3,371	-54	4,054	170	22	1
October .....	22	(s)	4,070	171	22	467	204	263	3,647	276	4,058	170	22	1
November .....	21	(s)	3,816	160	20	473	143	330	4,039	392	3,754	158	20	2
December .....	22	(s)	3,995	168	21	536	77	459	4,662	623	3,831	161	21	2
Total .....	240	3	44,222	1,857	237	3,969	2,470	1,499	4,662	394	45,326	1,904	243	19
2019 January .....	19	(s)	3,427	144	18	308	<sup>R</sup> 85	<sup>R</sup> 223	<sup>R</sup> 5,354	692	<sup>R</sup> 2,957	<sup>R</sup> 124	16	2
February .....	17	(s)	3,108	131	17	<sup>R</sup> 233	<sup>R</sup> 91	<sup>R</sup> 142	<sup>R</sup> 5,502	<sup>R</sup> 148	<sup>R</sup> 3,101	<sup>R</sup> 130	17	<sup>R</sup> 1
March .....	18	(s)	3,353	141	18	<sup>R</sup> 543	<sup>R</sup> 226	<sup>R</sup> 317	<sup>R</sup> 5,389	<sup>R</sup> -113	<sup>R</sup> 3,783	<sup>R</sup> 159	20	<sup>R</sup> 1
April .....	20	(s)	3,623	152	19	410	370	40	<sup>R</sup> 5,330	<sup>R</sup> -59	<sup>R</sup> 3,721	156	20	2
May .....	20	(s)	<sup>R</sup> 3,681	<sup>R</sup> 155	20	281	<sup>R</sup> 440	<sup>R</sup> -159	<sup>R</sup> 4,815	<sup>R</sup> -515	<sup>R</sup> 4,037	170	22	2
June .....	18	(s)	3,370	142	18	310	300	10	<sup>R</sup> 4,408	<sup>R</sup> -406	<sup>R</sup> 3,787	159	20	2
July .....	21	(s)	3,776	159	20	333	392	-59	<sup>R</sup> 4,088	<sup>R</sup> -321	<sup>R</sup> 4,039	<sup>R</sup> 170	<sup>R</sup> 22	2
August .....	20	(s)	3,712	156	20	<sup>R</sup> 216	<sup>R</sup> 291	<sup>R</sup> -75	<sup>R</sup> 3,860	<sup>R</sup> -228	<sup>R</sup> 3,865	<sup>R</sup> 162	<sup>R</sup> 21	2
September .....	18	(s)	3,377	142	18	280	238	42	<sup>R</sup> 3,706	<sup>R</sup> -154	<sup>R</sup> 3,574	<sup>R</sup> 150	19	1
October .....	19	(s)	3,436	144	18	314	158	156	<sup>R</sup> 3,738	<sup>R</sup> 32	<sup>R</sup> 3,560	<sup>R</sup> 150	19	1
November .....	16	(s)	3,034	127	16	417	56	361	<sup>R</sup> 3,887	<sup>R</sup> 149	<sup>R</sup> 3,246	<sup>R</sup> 136	<sup>R</sup> 17	<sup>R</sup> (s)
December .....	17	(s)	3,163	133	17	433	83	350	<sup>R</sup> 3,907	<sup>R</sup> 20	<sup>R</sup> 3,493	<sup>R</sup> 147	19	<sup>R</sup> 2
Total .....	223	3	<sup>R</sup> 41,060	<sup>R</sup> 1,725	220	<sup>R</sup> 4,078	<sup>R</sup> 2,730	<sup>R</sup> 1,348	<sup>R</sup> 3,907	<sup>R</sup> -756	<sup>R</sup> 43,163	<sup>R</sup> 1,813	231	<sup>R</sup> 18
2020 January .....	17	(s)	3,196	134	17	336	31	305	4,312	<sup>i</sup> 394	3,107	130	17	2
February .....	17	(s)	3,067	129	16	302	76	226	4,046	-266	3,559	149	19	1
March .....	20	(s)	3,594	151	19	333	215	118	4,419	373	3,339	140	18	1
April .....	19	(s)	3,407	143	18	611	526	85	4,392	-27	3,519	148	19	3
May .....	19	(s)	3,505	147	19	475	496	-21	4,340	-51	3,535	148	19	1
June .....	20	(s)	3,590	151	19	446	494	-48	4,318	-23	3,565	150	19	1
6-Month Total .....	111	2	20,359	855	109	2,503	1,839	664	4,318	399	20,624	866	111	9
2019 6-Month Total .....	112	2	20,561	864	110	2,085	1,513	572	4,408	-254	21,387	898	115	9
2018 6-Month Total .....	111	2	20,364	855	109	1,778	1,334	444	3,850	-418	21,226	892	114	11

<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. Includes biodiesel stocks at (or in) refineries, pipelines, and bulk terminals. Beginning in 2011, also includes stocks at biodiesel production plants.

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

<sup>f</sup> Other renewable diesel fuel and other renewable fuels consumption. 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 2019 stocks value (3,919 thousand barrels), not the final 2019 value (3,907 thousand barrels) that is shown under "Stocks."

<sup>R</sup>=Revised. NA=Not available. —=No data reported. (s)=Less than 0.5 trillion Btu and greater than -0.5 trillion Btu, or less than 500 barrels and greater than -500 barrels.

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	3	1	5	56	—	—	5	5	61	
2007 Total .....	53	2	4	1	7	60	—	—	6	6	66	
2008 Total .....	54	4	6	1	11	66	(s)	—	9	9	74	
2009 Total .....	55	5	8	2	15	69	(s)	—	9	9	78	
2010 Total .....	56	9	12	3	24	79	(s)	(s)	12	12	91	
2011 Total .....	58	13	20	4	37	95	1	(s)	17	18	112	
2012 Total .....	59	20	32	7	59	118	1	(s)	40	41	159	
2013 Total .....	61	31	38	9	78	138	3	(s)	83	86	225	
2014 Total .....	62	47	49	11	107	169	4	(s)	165	168	338	
2015 Total .....	63	65	53	14	132	195	4	(s)	228	232	427	
2016 Total .....	64	98	57	19	174	238	5	(s)	328	333	570	
2017 Total .....	65	128	71	22	221	286	5	(s)	486	491	777	
2018 January .....	4	8	5	1	15	18	(s)	(s)	30	30	49	
February .....	4	9	6	1	16	20	(s)	(s)	35	35	55	
March .....	5	13	7	2	22	28	(s)	(s)	46	46	74	
April .....	6	14	8	2	25	31	(s)	(s)	55	55	86	
May .....	7	16	9	2	27	34	1	(s)	62	62	96	
June .....	7	16	9	2	28	35	1	(s)	67	68	102	
July .....	7	17	9	3	29	36	1	(s)	61	61	97	
August .....	7	16	9	2	27	34	1	(s)	60	61	95	
September .....	6	14	8	2	24	30	(s)	(s)	54	54	85	
October .....	5	13	7	2	22	27	(s)	(s)	45	45	72	
November .....	4	10	6	2	17	22	(s)	(s)	34	34	56	
December .....	4	9	5	1	16	20	(s)	(s)	28	28	48	
Total .....	66	156	89	24	269	334	5	(s)	576	581	916	
2019 January .....	4	10	6	2	17	21	(s)	(s)	33	33	54	
February .....	4	11	6	2	19	23	(s)	(s)	35	35	58	
March .....	6	16	9	2	27	32	(s)	(s)	53	54	86	
April .....	6	18	9	3	30	36	1	(s)	62	62	98	
May .....	7	19	10	3	32	39	1	(s)	65	65	105	
June .....	7	20	10	3	33	40	1	(s)	72	73	113	
July .....	7	21	11	3	34	41	1	(s)	74	74	116	
August .....	7	20	10	3	33	40	1	(s)	71	72	112	
September .....	6	18	9	3	29	35	1	(s)	61	61	97	
October .....	5	15	8	2	26	31	(s)	(s)	55	56	87	
November .....	4	12	6	2	20	25	(s)	(s)	39	40	64	
December .....	4	11	6	2	19	22	(s)	(s)	32	32	54	
Total .....	66	190	101	28	319	385	6	1	651	658	1,043	
2020 January .....	4	12	7	2	21	24	(s)	(s)	41	41	66	
February .....	4	14	8	2	24	28	(s)	(s)	51	51	79	
March .....	6	19	10	3	31	37	(s)	(s)	57	57	94	
April .....	6	21	11	3	35	41	1	(s)	72	73	114	
May .....	7	24	12	3	39	45	1	(s)	88	89	134	
June .....	7	24	12	3	39	46	1	(s)	85	86	132	
6-Month Total .....	33	113	59	16	188	220	3	(s)	395	398	619	
2019 6-Month Total .....	33	94	50	14	158	190	3	(s)	319	323	513	
2018 6-Month Total .....	32	77	44	12	133	166	2	(s)	294	297	462	

<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	18	4	33	—	—	367	367	400
<b>1995 Total</b> .....	20	30	7	58	—	—	497	497	554
<b>2000 Total</b> .....	39	59	13	110	—	—	493	493	604
<b>2001 Total</b> .....	47	71	16	134	—	—	543	543	676
<b>2002 Total</b> .....	56	84	19	158	—	—	555	555	713
<b>2003 Total</b> .....	65	98	22	185	—	—	534	534	719
<b>2004 Total</b> .....	81	121	27	229	—	—	575	575	804
<b>2005 Total</b> .....	121	182	40	344	—	—	550	550	894
<b>2006 Total</b> .....	177	266	59	501	—	—	508	508	1,009
<b>2007 Total</b> .....	250	375	83	708	—	—	612	612	1,319
<b>2008 Total</b> .....	401	603	133	1,137	(s)	—	864	864	2,002
<b>2009 Total</b> .....	539	810	179	1,529	(s)	—	891	891	2,420
<b>2010 Total</b> .....	900	1,237	274	2,411	5	2	1,206	1,212	3,623
<b>2011 Total</b> .....	1,358	2,020	447	3,825	84	7	1,727	1,818	5,643
<b>2012 Total</b> .....	2,058	3,351	742	6,151	148	14	4,164	4,327	10,478
<b>2013 Total</b> .....	3,217	4,024	891	8,132	294	17	8,724	9,036	17,167
<b>2014 Total</b> .....	4,947	5,146	1,139	11,233	371	16	17,304	17,691	28,924
<b>2015 Total</b> .....	6,999	5,689	1,451	14,139	416	21	24,456	24,893	39,032
<b>2016 Total</b> .....	10,595	6,158	2,060	18,812	529	27	35,497	36,054	54,866
<b>2017 Total</b> .....	13,942	7,685	2,364	23,990	521	42	52,724	53,287	77,277
<b>2018 January</b> .....	921	552	146	1,619	29	2	3,288	3,319	4,938
February .....	1,007	605	155	1,766	31	3	3,863	3,896	5,663
March .....	1,393	820	221	2,434	43	4	5,009	5,056	7,490
April .....	1,592	907	241	2,740	50	4	6,002	6,057	8,796
May .....	1,753	992	267	3,011	57	5	6,788	6,849	9,860
June .....	1,788	1,003	268	3,059	62	5	7,347	7,415	10,474
July .....	1,834	1,036	277	3,146	59	5	6,691	6,755	9,901
August .....	1,756	993	268	3,017	56	5	6,634	6,695	9,712
September .....	1,539	893	242	2,674	46	4	5,911	5,961	8,635
October .....	1,385	786	220	2,392	39	4	4,926	4,970	7,361
November .....	1,108	623	174	1,905	29	3	3,711	3,743	5,648
December .....	1,029	589	157	1,775	25	2	3,083	3,110	4,885
<b>Total</b> .....	<b>17,105</b>	<b>9,798</b>	<b>2,636</b>	<b>29,539</b>	<b>525</b>	<b>47</b>	<b>63,253</b>	<b>63,825</b>	<b>93,365</b>
<b>2019 January</b> .....	1,106	632	168	1,906	32	4	3,619	3,655	5,561
February .....	1,204	680	178	2,062	32	4	3,791	3,827	5,888
March .....	1,726	938	254	2,918	51	6	5,852	5,910	8,828
April .....	1,934	1,042	278	3,253	57	7	6,771	6,835	10,089
May .....	2,129	1,121	309	3,558	61	8	7,123	7,191	10,750
June .....	2,174	1,130	311	3,615	67	9	7,930	8,006	11,620
July .....	2,267	1,184	321	3,772	70	9	8,089	8,169	11,941
August .....	2,183	1,128	311	3,623	67	8	7,812	7,888	11,510
September .....	1,929	1,006	281	3,216	57	7	6,688	6,752	9,968
October .....	1,696	890	255	2,840	48	6	6,077	6,131	8,971
November .....	1,346	688	198	2,232	37	5	4,335	4,377	6,608
December .....	1,209	658	179	2,046	30	4	3,460	3,494	5,541
<b>Total</b> .....	<b>20,902</b>	<b>11,097</b>	<b>3,041</b>	<b>35,041</b>	<b>608</b>	<b>79</b>	<b>71,547</b>	<b>72,234</b>	<b>107,275</b>
<b>2020 January</b> .....	1,369	732	192	2,293	34	4	4,516	4,555	6,848
February .....	1,566	830	213	2,609	41	5	5,606	5,652	8,261
March .....	2,034	1,083	293	3,409	49	7	6,258	6,314	9,723
April .....	2,293	1,192	316	3,801	64	8	7,938	8,010	11,811
May .....	2,593	1,303	349	4,245	74	12	9,656	9,742	13,987
June .....	2,592	1,311	355	4,258	69	11	9,387	9,467	13,725
<b>6-Month Total</b> .....	<b>12,447</b>	<b>6,452</b>	<b>1,717</b>	<b>20,616</b>	<b>330</b>	<b>47</b>	<b>43,361</b>	<b>43,739</b>	<b>64,355</b>
<b>2019 6-Month Total</b> .....	<b>10,272</b>	<b>5,543</b>	<b>1,497</b>	<b>17,312</b>	<b>300</b>	<b>38</b>	<b>35,086</b>	<b>35,424</b>	<b>52,736</b>
<b>2018 6-Month Total</b> .....	<b>8,453</b>	<b>4,878</b>	<b>1,298</b>	<b>14,630</b>	<b>272</b>	<b>23</b>	<b>32,297</b>	<b>32,592</b>	<b>47,222</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. —=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.

**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), biodiesel, and other renewable fuels consumption; and losses and co-products from the production of fuel ethanol and biodiesel. In Tables 1.1, 1.2, and 10.1, renewable energy production is assumed to equal consumption for all renewable energy sources except biofuels and wood. Biofuels production comprises biomass inputs to the production of fuel ethanol and biodiesel. Wood production is the sum of wood consumption and densified biomass exports.

### Table 10.2a Sources

#### *Residential Sector, Geothermal*

1989–2011: Annual estimates by the U.S. Energy Information Administration (EIA) based on data from Oregon Institute of Technology, Geo-Heat Center.

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

(For 1989 forward, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

#### *Residential Sector, Solar*

1989 forward: Residential sector solar consumption is the sum of the values for "Distributed Solar Energy Consumption: Heat" (which includes solar thermal direct use energy in the residential, commercial, and industrial sectors) from Table 10.5 and "Distributed Solar Energy Consumption: Electricity, Residential Sector" from Table 10.5.

#### *Residential Sector, Wood*

1949–1979: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2.

1980–2008: Annual estimates are based on EIA, Form EIA-457, "Residential Energy Consumption Survey"; and National Oceanic and Atmospheric Administration regional heating degree-day data.

2009 forward: Annual estimates based on EIA, Form EIA-457, "Residential Energy Consumption Survey"; and residential wood consumption growth rates from EIA's *Annual Energy Outlook* data system.

(For 1973 forward, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

#### *Residential Sector, Total Renewable Energy*

1949–1988: Residential sector total renewable energy consumption is equal to residential sector wood consumption.

1989 forward: Residential sector total renewable energy consumption is the sum of the residential sector consumption values for geothermal, solar, and wood.

#### *Commercial Sector, Hydroelectric Power*

1989 forward: Commercial sector conventional hydroelectricity net generation data from EIA, Form EIA-923, "Power Plant Operations Report," and predecessor forms, are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### ***Commercial Sector, Geothermal Heat Pump and Direct Use Energy***

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, Geothermal Electricity Net Generation***

December 2018 forward: Commercial sector geothermal 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, Geothermal Total***

1989–November 2018: Commercial sector geothermal total consumption is equal to commercial sector heat pump and direct use energy.

December 2018 forward: Commercial sector geothermal total consumption is the sum of the commercial sector values for geothermal heat pump and direct use energy, and geothermal electricity net generation.

### ***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 2014–2016, the annual estimates are based on commercial sector biomass consumption growth rates from EIA's *Annual Energy Outlook* data system; for 2017 forward, annual estimates are assumed by EIA to be equal to that of 2016). For 1989 forward, monthly estimates for commercial sector non-CHP wood consumption are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month. Commercial sector total wood consumption is the sum of commercial sector CHP and non-CHP wood consumption.

### ***Commercial Sector, Biomass Waste***

1989 forward: Table 7.4c.

### ***Commercial Sector, Fuel Ethanol (Minus Denaturant)***

1981 forward: The commercial sector share of motor gasoline consumption is equal to commercial sector motor gasoline consumption from Table 3.7a divided by motor gasoline product supplied from Table 3.5. Commercial sector

fuel ethanol (minus denaturant) consumption is equal to fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the commercial sector share of motor gasoline consumption. Note that there is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors; beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

### ***Commercial Sector, Total Biomass***

1949–1980: Commercial sector total biomass consumption is equal to commercial sector wood consumption.

1981–1988: Commercial sector total biomass consumption is the sum of the commercial sector consumption values for wood and fuel ethanol (minus denaturant).

1989 forward: Commercial sector total biomass consumption is the sum of the commercial sector consumption values for wood, waste, and fuel ethanol (minus denaturant).

### ***Commercial Sector, Total Renewable Energy***

1949–1988: Commercial sector total renewable energy consumption is equal to commercial sector total biomass consumption.

1989–2007: Commercial sector total renewable energy consumption is the sum of the commercial sector consumption values for conventional hydroelectric power, geothermal, and total biomass.

2008: Commercial sector total renewable energy consumption is the sum of the commercial sector consumption values for conventional hydroelectric power, geothermal, solar, and total biomass.

2009 forward: Commercial sector total renewable energy is the sum of the commercial sector consumption values for conventional hydroelectric power, geothermal, solar, wind, and total biomass.

## **Table 10.2b Sources**

### ***Industrial Sector, Hydroelectric Power***

1949 forward: Industrial sector conventional hydroelectricity net generation data from Table 7.2c are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### ***Industrial Sector, Geothermal***

1989–2009: Annual estimates by the U.S. Energy Information Administration (EIA) based on data from Oregon Institute of Technology, Geo-Heat Center.

2010 forward: Annual estimates assumed by EIA to be equal to that of 2009.

(For 1989 forward, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

### ***Industrial Sector, Solar***

1989 forward: Industrial sector solar consumption is the sum of the values for "Distributed Solar Energy Consumption: Electricity, Industrial Sector" from Table 10.5 and "Utility-Scale Solar Energy Consumption: Electricity, Industrial Sector" from Table 10.6.

### ***Industrial Sector, Wind***

2011 forward: Industrial sector wind electricity net generation data from EIA, Form EIA-923, "Power Plant Operations Report," are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### ***Industrial Sector, Wood***

1949–1979: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2.

1980–1983: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption 1980–1983*, Table ES1.

1984: Annual estimate is from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 1.

1985 and 1986: Annual estimates interpolated by EIA.

1987: Annual estimate is from EIA, *Estimates of Biofuels Consumption in the United States During 1987*, Table 2.

1988: Annual estimate interpolated by EIA.

(For 1973–1988, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

1989 forward: Monthly/annual industrial sector combined-heat-and-power (CHP) wood consumption data are from EIA, Form EIA-923, "Power Plant Operations Report," and predecessor forms. Annual estimates for industrial sector non-CHP wood consumption are based on EIA, Form EIA-846, "Manufacturing Energy Consumption Survey" (for 2015 forward, the annual estimates are assumed by EIA to be equal to that of 2014). For 1989 forward, monthly estimates for industrial sector non-CHP wood consumption are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month. Industrial sector total wood consumption is the sum of industrial sector CHP and non-CHP wood consumption.

### ***Industrial Sector, Biomass Waste***

1981: Annual estimate is calculated as total waste consumption (from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER Table 10.2c).

1982 and 1983: Annual estimates are calculated as total waste consumption (based on *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER, Table 10.2c).

1984: Annual estimate is calculated as total waste consumption (from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER, Table 10.2c).

1985 and 1986: Annual estimates interpolated by EIA.

1987: Annual estimate is calculated as total waste consumption (from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER, Table 10.2c).

1988: Annual estimate interpolated by EIA.

(For 1973–1988, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

1989 forward: Monthly/annual industrial sector combined-heat-and-power (CHP) consumption data are from Table 7.4c. Annual estimates for industrial sector non-CHP waste consumption are based on information presented in Government Advisory Associates, *Resource Recovery Yearbook* and *Methane Recovery Yearbook*, and information provided by the U.S. Environmental Protection Agency, Landfill Methane Outreach Program (for 2014 forward, the annual estimates are assumed by EIA to be equal to that of 2013). For 1989 forward, monthly estimates for industrial sector non-CHP waste consumption are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month. Industrial sector total waste consumption is the sum of industrial sector CHP and non-CHP waste consumption.

### ***Industrial Sector, Fuel Ethanol (Minus Denaturant)***

1981 forward: The industrial sector share of motor gasoline consumption is equal to industrial sector motor gasoline consumption from Table 3.7b divided by motor gasoline product supplied from Table 3.5. Industrial sector fuel ethanol (minus denaturant) consumption is equal to fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the industrial sector share of motor gasoline consumption. Note that there is a discontinuity in this time series between

2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors; beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

### ***Industrial Sector, Biomass Losses and Co-products***

1981 forward: Calculated as fuel ethanol losses and co-products from Table 10.3 plus biodiesel losses and co-products from Table 10.4.

### ***Industrial Sector, Total Biomass***

1949–1980: Industrial sector total biomass consumption is equal to industrial sector wood consumption.

1981 forward: Industrial sector total biomass consumption is the sum of the industrial sector consumption values for wood, waste, fuel ethanol (minus denaturant), and biomass losses and co-products.

### ***Industrial Sector, Total Renewable Energy***

1949–1988: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power and total biomass.

1989–2009: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power, geothermal, and total biomass.

2010: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power, geothermal, solar, and total biomass.

2011 forward: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power, geothermal, solar, wind, and total biomass.

### ***Transportation Sector, Fuel Ethanol (Minus Denaturant)***

1981 forward: The transportation sector share of motor gasoline consumption is equal to transportation sector motor gasoline consumption from Table 3.7c divided by motor gasoline product supplied from Table 3.5. Transportation sector fuel ethanol (minus denaturant) consumption is equal to fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the transportation sector share of motor gasoline consumption. Note that there is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors; beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

### ***Transportation Sector, Biodiesel***

2001 forward: Table 10.4. Transportation sector biodiesel consumption is assumed to equal total biodiesel consumption.

### ***Transportation Sector, Other Renewable Fuels***

2009 forward: Table 10.4.

### ***Transportation Sector, Total Renewable Energy***

1981–2000: Transportation sector total renewable energy consumption is equal to transportation sector fuel ethanol (minus denaturant) consumption.

2001–2008: Transportation sector total renewable energy consumption is the sum of the transportation sector consumption values for fuel ethanol (minus denaturant) and biodiesel.

2009 forward: Transportation sector total renewable energy consumption is the sum of the transportation sector consumption values for fuel ethanol (minus denaturant), biodiesel, and other renewable fuels.

## Table 10.3 Sources

### *Feedstock*

1981 forward: Calculated as fuel ethanol production (in thousand barrels) minus denaturant, and then multiplied by the fuel ethanol feedstock factor—see Table A3.

### *Losses and Co-products*

1981 forward: Calculated as fuel ethanol feedstock plus denaturant minus fuel ethanol production.

### *Denaturant*

1981–2008: Data in thousand barrels for petroleum denaturant in fuel ethanol produced are estimated as 2% of fuel ethanol production; these data are converted to Btu by multiplying by 4.661 million Btu per barrel (the estimated quantity-weighted factor of natural gasoline and conventional motor gasoline used as denaturant).

2009–2019: U.S. Energy Information Administration (EIA), *Petroleum Supply Annual* (PSA), annual reports, Table 1. Data in thousand barrels for net production of natural gasoline at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 4.638 million Btu per barrel (the approximate heat content of natural gasoline). Data in thousand barrels for net production of conventional motor gasoline and motor gasoline blending components at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 5.222 million Btu per barrel (the approximate heat content of motor gasoline blending components). Total denaturant is the sum of the values for natural gasoline, conventional motor gasoline, and motor gasoline blending components.

2020: EIA, *Petroleum Supply Monthly* (PSM), monthly reports, Table 1. Data in thousand barrels for net production of natural gasoline at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 4.638 million Btu per barrel (the approximate heat content of natural gasoline). Data in thousand barrels for net production of conventional motor gasoline and motor gasoline blending components at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 5.222 million Btu per barrel (the approximate heat content of motor gasoline blending components). Total denaturant is the sum of the values for natural gasoline, conventional motor gasoline, and motor gasoline blending components.

### *Production*

1981–1992: Fuel ethanol production is assumed to equal fuel ethanol consumption—see sources for "Consumption."

1993–2004: Calculated as fuel ethanol consumption plus fuel ethanol stock change minus fuel ethanol net imports. These data differ slightly from the original production data from EIA, Form EIA-819, "Monthly Oxygenate Report," and predecessor form, which were not reconciled and updated to be consistent with the final balance.

2005–2008: EIA, Form EIA-819, "Monthly Oxygenate Report."

2009–2019: EIA, PSA, annual reports, Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants.

2020: EIA, PSM, monthly reports, Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants.

### *Trade, Stocks, and Stock Change*

1992–2019: EIA, PSA, annual reports, Table 1.

2020: 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).

2009–2019: EIA, PSA, annual reports, Table 1. Calculated as fuel ethanol refinery and blender net inputs minus fuel ethanol adjustments.

2020: 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.

2011–2019: EIA, *Petroleum Supply Annual* (PSA), annual reports, Table 1, data for renewable fuels except fuel ethanol.

2020: 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.

2012–2019: EIA, PSA, annual reports, Tables 25 and 31, data for biomass-based diesel fuel.

2020: 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: Consumption data for "Other Renewable Diesel Fuel" are set equal to refinery and blender net inputs data from EIA, EIA-810, "Monthly Refinery Report," and EIA-815, "Monthly Bulk Terminal and Blender Report" (data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1). Consumption data for "Other Renewable Fuels" are set equal to refinery and blender net inputs data from EIA, EIA-810, "Monthly Refinery Report," and EIA-815, "Monthly Bulk Terminal and Blender Report" (data are converted to Btu by multiplying by the other renewable fuels heat content factor in Table A1). "Other Renewable Fuels" in Table 10.4 is calculated as other renewable diesel fuel consumption plus other renewable fuels consumption.

## **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: 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 derive monthly estimates for that year. Initial monthly estimates for the current year use the previous year's allocators.

#### ***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 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.

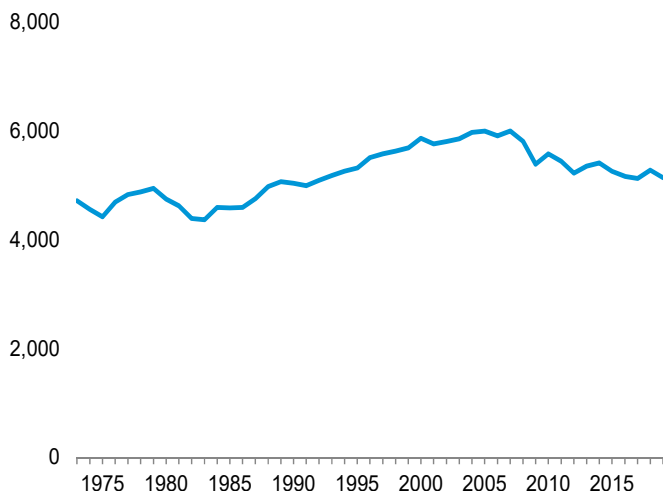
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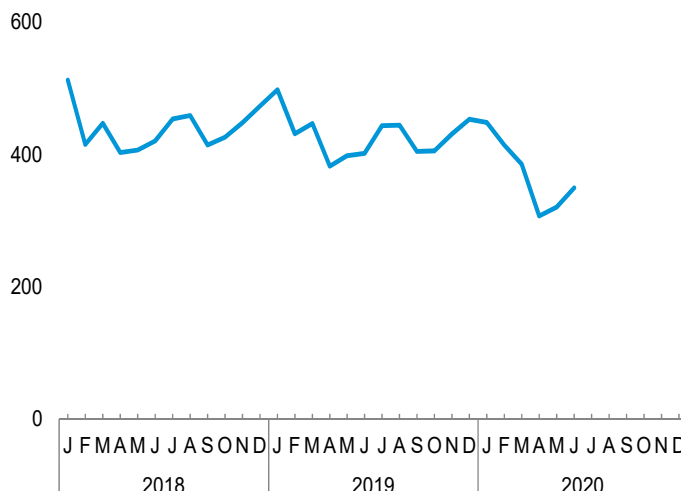
**Figure 11.1 Carbon Dioxide Emissions From Energy Consumption by Source**

(Million Metric Tons of Carbon Dioxide)

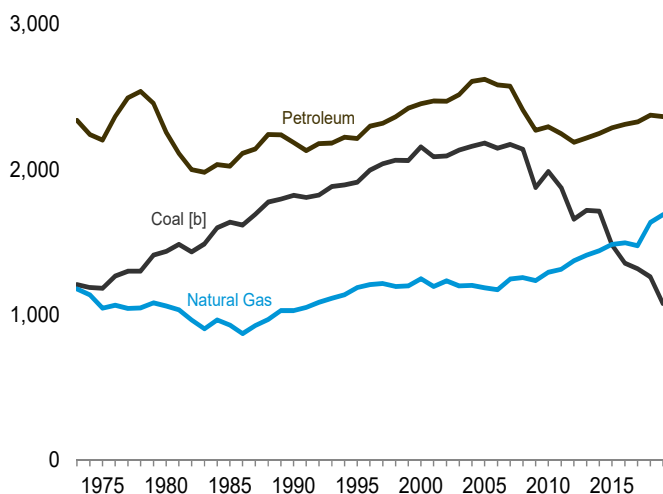
Total [a], 1973–2019



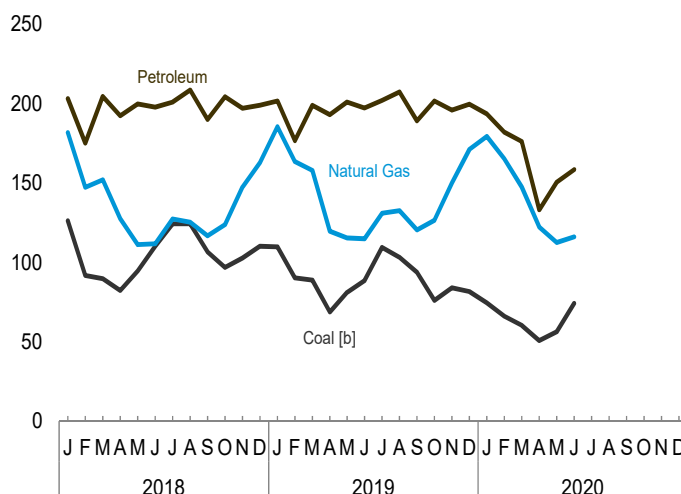
Total [a], Monthly



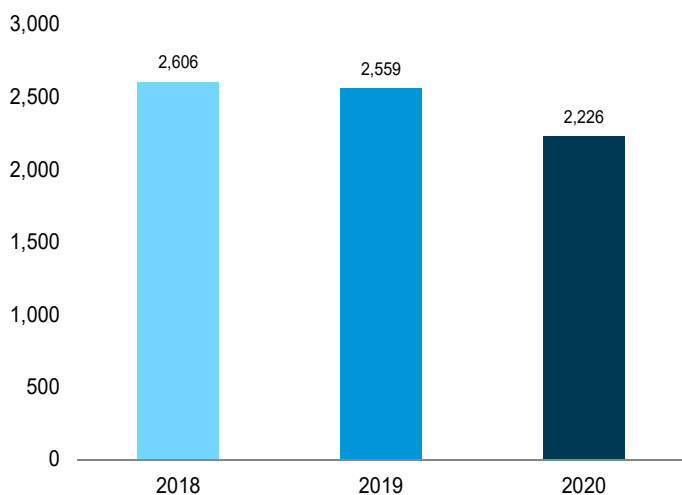
By Major Source, 1973–2019



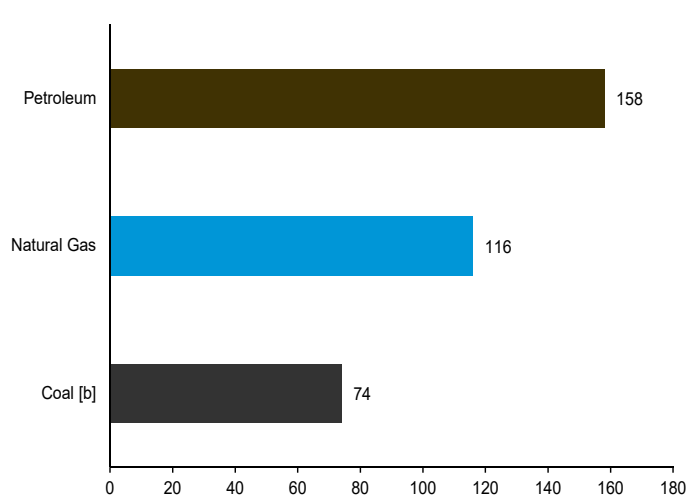
By Major Source, Monthly



Total [a], January–June



By Major Source, June 2020



[a] Excludes emissions from biomass energy consumption.

[b] Includes coal coke net imports.

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

Source: Table 11.1.

**Table 11.1 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	Total <sup>h,i</sup>
			Aviation Gasoline	Distillate Fuel Oil <sup>d</sup>	HGL <sup>e</sup>	Jet Fuel	Kero-sene	Lubri-cants	Motor Gasoline <sup>f</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>g</sup>		
1973 Total .....	1,206	1,176	6	480	80	155	32	13	911	54	510	99	2,340	4,722
1975 Total .....	1,181	1,044	5	442	73	146	24	11	911	51	445	94	2,202	4,426
1980 Total .....	1,435	1,059	4	446	78	156	24	13	900	49	455	131	2,256	4,750
1985 Total .....	1,637	927	3	445	82	178	17	12	930	55	217	83	2,022	4,587
1990 Total .....	1,821	1,027	3	470	75	223	6	13	988	70	222	115	2,185	5,040
1995 Total .....	1,913	1,186	3	498	90	222	8	13	1,042	77	154	107	2,214	5,323
2000 Total .....	2,156	1,246	3	579	106	254	10	14	1,133	84	165	107	2,454	5,867
2001 Total .....	2,088	1,193	2	597	96	243	11	13	1,149	90	147	125	2,472	5,765
2002 Total .....	2,094	1,231	2	586	98	237	6	12	1,180	100	126	122	2,471	5,809
2003 Total .....	2,135	1,196	2	610	96	231	8	11	1,186	99	140	134	2,517	5,860
2004 Total .....	2,160	1,201	2	632	96	240	10	12	1,209	113	157	136	2,606	5,979
2005 Total .....	2,181	1,183	2	639	92	246	10	12	1,208	111	166	135	2,623	5,999
2006 Total .....	2,147	1,171	2	645	86	240	8	11	1,216	104	125	147	2,584	5,914
2007 Total .....	2,172	1,246	2	647	90	238	5	12	1,208	98	131	143	2,573	6,003
2008 Total .....	2,140	1,255	2	610	89	226	2	11	1,139	92	113	126	2,410	5,817
2009 Total .....	1,876	1,234	2	555	86	204	3	10	1,126	85	92	107	2,271	5,392
2010 Total .....	1,986	1,292	2	583	85	210	3	11	1,110	82	97	115	2,296	5,585
2011 Total .....	1,875	1,311	2	592	79	209	2	10	1,077	79	83	114	2,247	5,446
2012 Total .....	1,657	1,372	2	569	76	206	1	9	1,071	79	67	110	2,189	5,229
2013 Total .....	1,718	1,409	2	573	85	210	1	10	1,086	77	58	116	2,218	5,356
2014 Total .....	1,714	1,440	2	606	86	216	1	10	1,095	78	46	108	2,249	5,413
2015 Total .....	1,480	1,483	1	598	87	227	1	11	1,125	79	47	112	2,288	5,263
2016 Total .....	1,354	1,494	1	576	83	237	1	11	1,144	78	59	120	2,311	5,171
2017 Total .....	1,316	1,475	1	584	86	247	1	10	1,140	72	62	126	2,328	5,131
2018 January .....	126	182	(s)	57	12	20	(s)	1	91	7	5	11	203	512
February .....	92	147	(s)	46	9	18	(s)	1	83	3	4	11	175	415
March .....	90	152	(s)	53	9	21	(s)	1	99	6	4	12	205	447
April .....	82	128	(s)	51	8	20	(s)	1	93	6	6	9	193	403
May .....	95	111	(s)	53	6	21	(s)	1	99	6	5	10	200	407
June .....	110	112	(s)	48	6	22	(s)	1	99	7	4	11	198	421
July .....	124	127	(s)	50	6	22	(s)	1	100	6	5	10	201	454
August .....	124	125	(s)	53	7	23	(s)	1	101	8	4	10	209	459
September .....	107	117	(s)	49	7	21	(s)	1	92	7	5	8	190	414
October .....	97	124	(s)	55	8	21	(s)	1	96	8	4	11	204	426
November .....	103	147	(s)	51	10	21	(s)	1	93	5	5	10	197	448
December .....	110	163	(s)	51	11	21	(s)	1	95	5	6	10	199	473
Total .....	1,260	1,636	2	618	98	250	1	10	1,141	74	57	123	2,374	5,281
2019 January .....	110	186	(s)	R 55	12	20	(s)	1	91	R 6	5	R 11	R 202	R 498
February .....	90	164	(s)	R 49	10	18	(s)	1	R 85	2	4	7	R 177	R 431
March .....	89	158	(s)	53	10	21	(s)	R 1	95	6	3	10	199	447
April .....	69	120	(s)	R 50	7	21	(s)	1	R 95	4	3	11	R 193	R 383
May .....	81	115	(s)	R 52	7	22	(s)	1	R 98	6	3	12	R 201	R 398
June .....	89	115	(s)	49	6	22	(s)	1	97	R 8	5	10	197	R 402
July .....	110	131	(s)	49	7	23	(s)	1	99	8	5	R 10	R 202	R 444
August .....	103	133	(s)	R 51	7	23	(s)	1	102	R 6	5	12	207	444
September .....	94	121	(s)	48	7	R 21	(s)	1	92	5	R 5	11	189	R 405
October .....	76	127	(s)	54	8	22	(s)	1	R 96	R 4	5	11	202	R 405
November .....	84	150	(s)	52	10	21	(s)	1	92	R 6	3	11	196	431
December .....	82	171	(s)	R 50	11	R 23	(s)	1	93	7	4	11	R 200	R 453
Total .....	1,076	1,689	2	R 613	103	R 256	1	9	R 1,137	R 69	R 50	R 127	R 2,365	R 5,142
2020 January .....	75	179	(s)	51	10	21	(s)	1	91	5	4	11	R 194	R 449
February .....	66	165	(s)	47	9	19	(s)	1	87	5	2	12	182	R 415
March .....	60	148	(s)	50	9	17	(s)	(s)	81	5	2	12	176	385
April .....	51	122	(s)	43	7	8	(s)	1	59	4	2	10	133	307
May .....	56	113	(s)	45	7	7	(s)	1	74	4	1	11	R 151	320
June .....	74	116	(s)	43	6	9	(s)	1	83	4	3	9	158	350
6-Month Total .....	382	843	1	278	48	82	1	4	476	26	14	64	994	2,226
2019 6-Month Total .....	528	857	1	309	53	125	1	5	562	32	23	61	1,169	2,559
2018 6-Month Total .....	595	832	1	308	49	122	1	5	562	34	27	64	1,173	2,606

<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> Hydrocarbon gas liquids.

<sup>f</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>g</sup> Aviation gasoline blending components, crude oil, motor gasoline blending components, 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 11.6.

<sup>i</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

R=Revised. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 11 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 11.7 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.

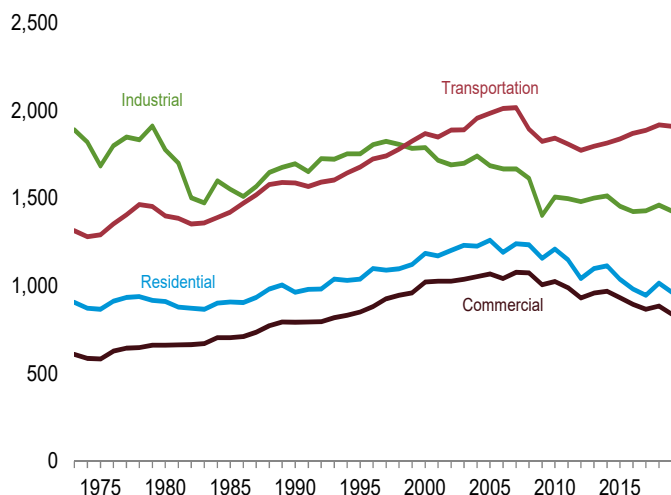
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#environment> (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

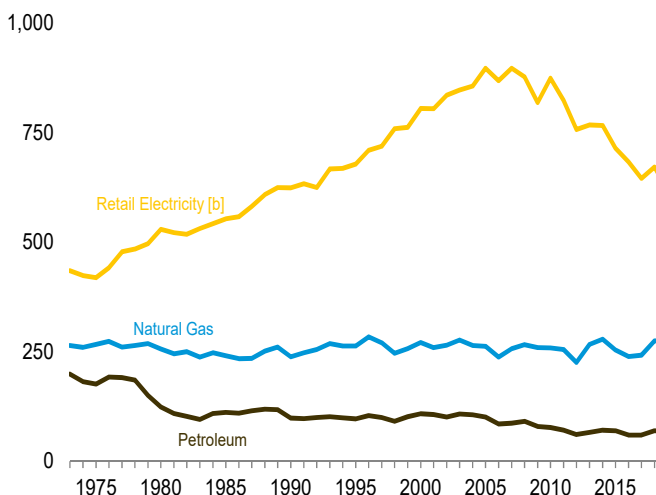
**Figure 11.2 Carbon Dioxide Emissions From Energy Consumption by Sector**

(Million Metric Tons of Carbon Dioxide)

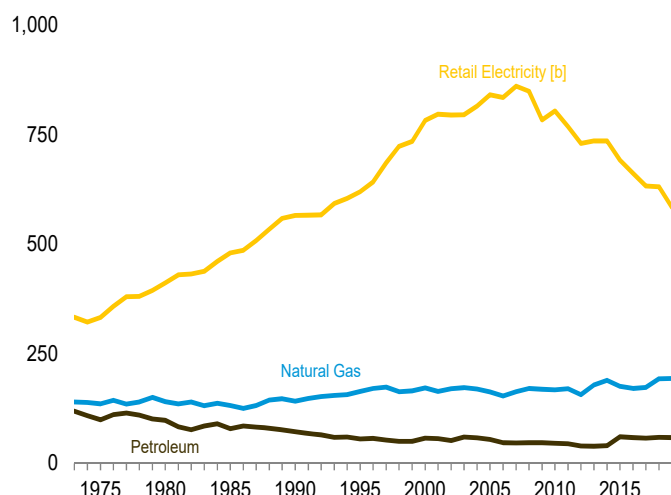
Total [a] by End-Use Sector [b], 1973–2019



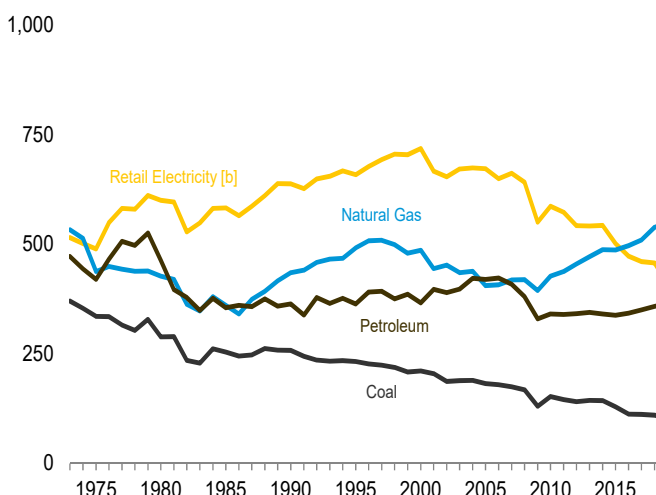
Residential Sector by Major Source, 1973–2019



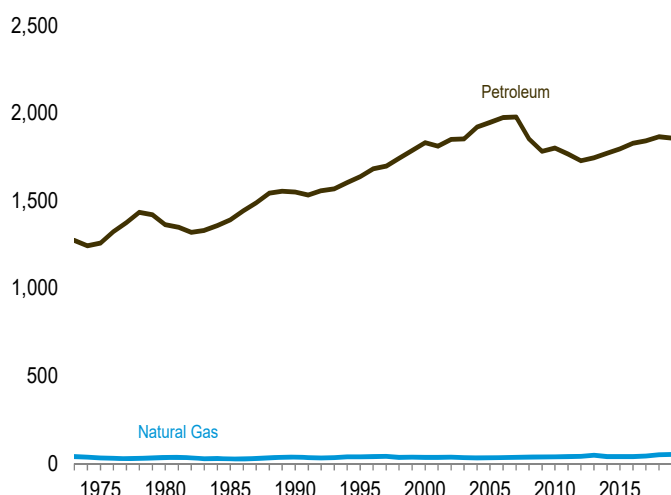
Commercial Sector by Major Source, 1973–2019



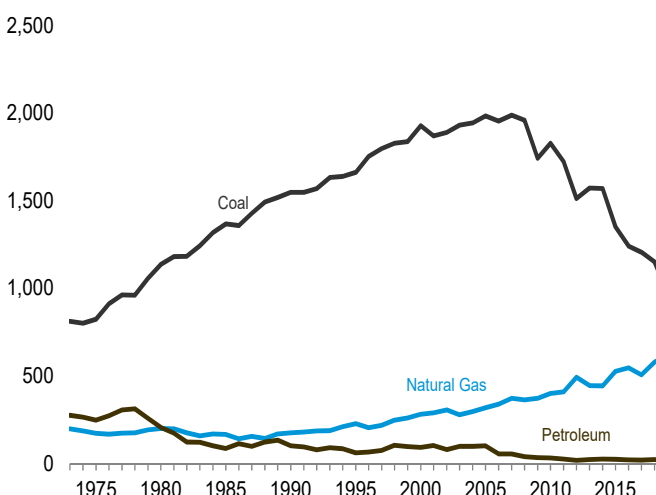
Industrial Sector by Major Source, 1973–2019



Transportation Sector by Major Source, 1973–2019



Electric Power Sector by Major Source, 1973–2019



[a] Excludes emissions from biomass energy consumption.

[b] Emissions from energy consumption in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total

electricity retail sales.

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

Sources: Tables 11.2–11.6.



**Table 11.2 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>	HGL <sup>d</sup>	Kerosene	Total		
<b>1973 Total</b> .....	9	264	147	36	16	199	435	907
<b>1975 Total</b> .....	6	266	132	32	12	176	419	867
<b>1980 Total</b> .....	3	256	96	20	8	124	529	911
<b>1985 Total</b> .....	4	241	80	20	11	111	553	909
<b>1990 Total</b> .....	3	238	72	22	5	98	624	963
<b>1995 Total</b> .....	2	263	66	25	5	96	678	1,039
<b>2000 Total</b> .....	1	271	66	35	7	108	805	1,185
<b>2001 Total</b> .....	1	259	66	33	7	106	805	1,171
<b>2002 Total</b> .....	1	265	63	34	4	101	835	1,203
<b>2003 Total</b> .....	1	276	68	34	5	108	847	1,232
<b>2004 Total</b> .....	1	264	67	32	6	106	856	1,227
<b>2005 Total</b> .....	1	262	62	32	6	101	897	1,261
<b>2006 Total</b> .....	1	237	52	28	5	85	869	1,191
<b>2007 Total</b> .....	1	257	53	31	3	86	897	1,241
<b>2008 Total</b> .....	NA	266	55	35	2	91	877	1,235
<b>2009 Total</b> .....	NA	259	43	35	2	79	819	1,157
<b>2010 Total</b> .....	NA	259	41	33	2	77	874	1,210
<b>2011 Total</b> .....	NA	255	38	31	1	71	823	1,149
<b>2012 Total</b> .....	NA	225	35	25	1	61	757	1,043
<b>2013 Total</b> .....	NA	267	36	29	1	66	768	1,100
<b>2014 Total</b> .....	NA	278	39	31	1	71	766	1,115
<b>2015 Total</b> .....	NA	253	40	28	1	69	714	1,037
<b>2016 Total</b> .....	NA	239	32	27	1	60	683	982
<b>2017 Total</b> .....	NA	242	32	27	1	59	645	947
<b>2018 January</b> .....	NA	54	6	5	(s)	12	72	138
February .....	NA	38	4	4	(s)	8	48	94
March .....	NA	36	3	4	(s)	7	45	88
April .....	NA	24	3	3	(s)	6	39	69
May .....	NA	9	2	1	(s)	3	46	59
June .....	NA	7	1	1	(s)	2	60	69
July .....	NA	6	1	1	(s)	2	76	84
August .....	NA	5	1	1	(s)	2	74	81
September .....	NA	6	2	1	(s)	3	60	69
October .....	NA	14	3	2	(s)	6	48	67
November .....	NA	33	4	4	(s)	8	49	90
December .....	NA	42	6	5	(s)	10	57	110
<b>Total</b> .....	NA	274	37	32	1	70	671	1,016
<b>2019 January</b> .....	NA	52	5	5	(s)	11	62	125
February .....	NA	44	4	4	(s)	9	50	103
March .....	NA	38	4	4	(s)	8	47	93
April .....	NA	18	3	2	(s)	5	34	57
May .....	NA	12	2	2	(s)	4	41	56
June .....	NA	7	2	1	(s)	3	52	61
July .....	NA	6	2	1	(s)	3	72	81
August .....	NA	6	2	1	(s)	3	68	77
September .....	NA	6	1	1	(s)	3	58	66
October .....	NA	13	2	2	(s)	4	43	R 60
November .....	NA	32	4	4	(s)	8	44	84
December .....	NA	41	5	4	(s)	9	49	100
<b>Total</b> .....	NA	275	37	31	1	69	620	963
<b>2020 January</b> .....	NA	45	4	4	(s)	9	48	101
February .....	NA	40	3	4	(s)	8	42	89
March .....	NA	29	3	3	(s)	6	37	73
April .....	NA	21	3	3	(s)	5	33	59
May .....	NA	13	3	2	(s)	5	37	55
June .....	NA	7	2	1	(s)	3	52	63
<b>6-Month Total</b> .....	NA	155	18	17	1	36	249	441
<b>2019 6-Month Total</b> .....	NA	171	20	18	(s)	38	287	496
<b>2018 6-Month Total</b> .....	NA	168	20	18	1	38	310	516

<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> Hydrocarbon gas liquids.

<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 11.6.

<sup>f</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

R=Revised. NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 11 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 11.7 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 11.3 Carbon Dioxide Emissions From Energy Consumption: Commercial Sector**  
(Million Metric Tons of Carbon Dioxide<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum						Total	Retail Electricity <sup>f</sup>	Total <sup>g</sup>
			Distillate Fuel Oil <sup>c</sup>	HGL <sup>d</sup>	Kerosene	Motor Gasoline <sup>e</sup>	Petroleum Coke	Residual Fuel Oil			
<b>1973 Total</b> .....	15	141	47	9	5	6	NA	52	120	334	609
<b>1975 Total</b> .....	14	136	43	8	4	6	NA	39	100	333	583
<b>1980 Total</b> .....	11	141	38	6	3	8	NA	44	98	412	662
<b>1985 Total</b> .....	13	132	46	6	2	7	NA	18	79	480	705
<b>1990 Total</b> .....	12	142	39	6	1	8	0	18	73	566	793
<b>1995 Total</b> .....	11	164	35	7	2	1	(s)	11	56	620	851
<b>2000 Total</b> .....	9	173	36	9	2	3	(s)	7	58	783	1,022
<b>2001 Total</b> .....	9	164	37	9	2	3	(s)	6	57	797	1,027
<b>2002 Total</b> .....	9	170	32	9	1	3	(s)	6	52	795	1,026
<b>2003 Total</b> .....	8	173	36	10	1	4	(s)	9	60	796	1,037
<b>2004 Total</b> .....	10	170	34	10	1	3	(s)	10	58	815	1,053
<b>2005 Total</b> .....	9	163	33	8	2	3	(s)	9	55	841	1,069
<b>2006 Total</b> .....	6	154	29	8	1	3	(s)	6	47	835	1,043
<b>2007 Total</b> .....	7	164	28	8	1	4	(s)	6	46	861	1,078
<b>2008 Total</b> .....	8	171	28	10	(s)	3	(s)	6	47	849	1,075
<b>2009 Total</b> .....	7	169	29	9	(s)	3	(s)	6	47	784	1,007
<b>2010 Total</b> .....	7	168	29	9	(s)	3	(s)	5	46	804	1,025
<b>2011 Total</b> .....	6	171	29	9	(s)	3	(s)	4	45	768	990
<b>2012 Total</b> .....	4	157	26	9	(s)	3	(s)	2	40	731	932
<b>2013 Total</b> .....	4	179	25	10	(s)	3	(s)	2	39	736	958
<b>2014 Total</b> .....	4	190	26	10	(s)	4	(s)	1	41	736	970
<b>2015 Total</b> .....	3	176	26	9	(s)	25	(s)	(s)	61	692	932
<b>2016 Total</b> .....	2	171	24	9	(s)	25	(s)	(s)	59	662	894
<b>2017 Total</b> .....	2	174	24	10	(s)	24	(s)	(s)	58	633	867
<b>2018 January</b> .....	(s)	30	4	2	(s)	2	(s)	(s)	7	56	94
February .....	(s)	23	2	1	(s)	2	(s)	(s)	5	43	72
March .....	(s)	23	2	1	(s)	2	(s)	(s)	5	45	74
April .....	(s)	17	2	1	(s)	2	(s)	(s)	5	42	64
May .....	(s)	9	1	1	(s)	2	0	(s)	4	50	63
June .....	(s)	8	1	1	(s)	2	0	(s)	4	56	68
July .....	(s)	8	1	1	(s)	2	0	(s)	4	65	76
August .....	(s)	8	1	1	(s)	2	0	(s)	3	65	76
September .....	(s)	8	1	1	(s)	2	(s)	(s)	4	57	68
October .....	(s)	13	2	1	(s)	2	(s)	(s)	5	52	70
November .....	(s)	21	3	1	(s)	2	(s)	(s)	6	50	77
December .....	(s)	25	4	1	(s)	2	(s)	(s)	7	50	83
<b>Total</b> .....	2	193	24	11	(s)	24	(s)	(s)	59	632	886
<b>2019 January</b> .....	(s)	31	3	1	(s)	2	(s)	(s)	7	52	89
February .....	(s)	26	3	1	(s)	2	(s)	(s)	6	44	76
March .....	(s)	23	3	1	(s)	2	(s)	(s)	6	45	75
April .....	(s)	14	2	1	(s)	2	(s)	(s)	4	39	57
May .....	(s)	10	1	1	(s)	2	0	(s)	4	46	60
June .....	(s)	8	1	1	(s)	2	0	(s)	4	50	62
July .....	(s)	8	1	1	(s)	2	0	(s)	4	61	73
August .....	(s)	8	2	1	(s)	2	0	(s)	4	60	72
September .....	(s)	8	1	1	(s)	2	0	(s)	3	54	65
October .....	(s)	12	1	1	(s)	2	0	(s)	4	46	62
November .....	(s)	21	3	1	(s)	2	0	(s)	6	45	72
December .....	(s)	25	3	1	(s)	2	(s)	(s)	7	44	75
<b>Total</b> .....	2	194	23	11	(s)	24	(s)	(s)	59	585	839
<b>2020 January</b> .....	(s)	27	3	1	(s)	2	(s)	(s)	6	42	75
February .....	(s)	25	2	1	(s)	2	(s)	(s)	5	38	68
March .....	(s)	19	2	1	(s)	2	0	(s)	5	37	61
April .....	(s)	13	2	1	(s)	1	0	(s)	4	30	48
May .....	(s)	9	2	1	(s)	2	0	(s)	4	33	47
June .....	(s)	7	1	1	(s)	2	0	(s)	4	43	54
<b>6-Month Total</b> .....	1	100	12	6	(s)	10	(s)	(s)	28	224	352
<b>2019 6-Month Total</b> .....	1	112	13	6	(s)	12	(s)	(s)	31	275	419
<b>2018 6-Month Total</b> .....	1	110	12	6	(s)	12	(s)	(s)	31	293	435

<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> Hydrocarbon gas liquids.

<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 11.6.

<sup>g</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 11 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 11.7 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 11.4 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>	HGL <sup>d</sup>	Kero- sene	Lubri- cants	Motor Gasoline <sup>e</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>f</sup>	Total		
<b>1973 Total</b> .....	371	-1	533	106	31	11	7	18	52	146	99	472	515	1,891
<b>1975 Total</b> .....	335	2	438	97	30	9	6	16	51	119	94	420	490	1,685
<b>1980 Total</b> .....	289	-4	428	96	52	13	7	11	48	106	131	464	601	1,777
<b>1985 Total</b> .....	255	-2	361	81	54	3	6	15	54	59	83	356	583	1,553
<b>1990 Total</b> .....	258	1	436	84	45	1	7	13	67	32	115	364	638	1,697
<b>1995 Total</b> .....	233	7	492	82	57	1	7	14	69	27	107	364	659	1,754
<b>2000 Total</b> .....	211	7	486	87	61	1	7	11	74	19	107	366	719	1,790
<b>2001 Total</b> .....	205	3	444	95	53	2	6	21	79	16	125	397	667	1,717
<b>2002 Total</b> .....	187	7	453	88	54	1	6	22	82	15	122	390	654	1,691
<b>2003 Total</b> .....	189	6	435	85	50	2	6	23	81	17	134	398	672	1,700
<b>2004 Total</b> .....	190	16	438	88	53	2	6	26	92	20	136	423	674	1,741
<b>2005 Total</b> .....	182	5	406	92	49	3	6	25	88	22	135	420	672	1,685
<b>2006 Total</b> .....	180	7	408	91	49	2	6	26	84	19	147	423	650	1,667
<b>2007 Total</b> .....	175	3	419	91	50	1	6	21	81	15	143	409	662	1,667
<b>2008 Total</b> .....	168	5	419	98	41	(s)	6	17	78	15	126	380	642	1,614
<b>2009 Total</b> .....	131	-3	395	78	41	(s)	5	16	72	10	107	330	550	1,403
<b>2010 Total</b> .....	152	-1	427	84	42	1	5	17	68	9	115	341	587	1,507
<b>2011 Total</b> .....	146	1	438	90	38	(s)	5	17	65	10	114	340	574	1,498
<b>2012 Total</b> .....	141	(s)	455	93	42	(s)	4	17	70	5	110	342	543	1,481
<b>2013 Total</b> .....	144	-2	472	92	46	(s)	5	17	65	4	116	345	542	1,501
<b>2014 Total</b> .....	143	-2	488	100	45	(s)	5	14	66	3	108	341	543	1,513
<b>2015 Total</b> .....	129	-2	487	85	49	(s)	5	17	67	3	112	338	502	1,455
<b>2016 Total</b> .....	113	-2	497	84	46	(s)	5	17	66	4	120	343	473	1,424
<b>2017 Total</b> .....	112	-3	510	88	48	(s)	5	18	62	4	126	<sup>R</sup> 350	461	1,430
<b>2018 January</b> .....	9	(s)	49	10	5	(s)	(s)	1	5	(s)	11	33	39	129
<b>February</b> .....	9	(s)	44	7	4	(s)	(s)	1	3	(s)	11	26	32	111
<b>March</b> .....	9	(s)	47	9	4	(s)	(s)	2	5	(s)	12	33	34	122
<b>April</b> .....	9	(s)	44	7	4	(s)	(s)	1	5	(s)	9	27	32	113
<b>May</b> .....	9	(s)	43	9	4	(s)	(s)	2	5	(s)	10	30	38	120
<b>June</b> .....	9	(s)	42	6	4	(s)	(s)	2	6	(s)	11	29	40	119
<b>July</b> .....	9	(s)	43	6	5	(s)	(s)	2	5	(s)	10	<sup>R</sup> 28	44	125
<b>August</b> .....	9	(s)	43	8	5	(s)	(s)	2	7	(s)	10	33	44	130
<b>September</b> .....	9	(s)	43	7	5	(s)	(s)	1	7	(s)	8	29	40	121
<b>October</b> .....	9	(s)	44	9	5	(s)	(s)	2	7	(s)	11	34	38	126
<b>November</b> .....	9	(s)	47	7	5	(s)	(s)	1	4	(s)	10	29	38	123
<b>December</b> .....	10	(s)	49	5	5	(s)	(s)	1	4	(s)	10	26	37	122
<b>Total</b> .....	110	-3	539	92	54	(s)	5	18	64	3	123	358	457	1,462
<b>2019 January</b> .....	9	(s)	51	<sup>R</sup> 10	6	(s)	(s)	1	5	(s)	<sup>R</sup> 11	<sup>R</sup> 34	36	<sup>R</sup> 130
<b>February</b> .....	9	(s)	46	9	5	(s)	(s)	1	1	(s)	7	24	31	110
<b>March</b> .....	9	(s)	48	9	<sup>R</sup> 4	(s)	(s)	1	5	(s)	10	30	33	120
<b>April</b> .....	8	(s)	44	<sup>R</sup> 8	4	(s)	<sup>R</sup> (s)	1	4	(s)	11	<sup>R</sup> 30	29	<sup>R</sup> 111
<b>May</b> .....	9	(s)	44	8	4	(s)	(s)	2	5	(s)	12	<sup>R</sup> 32	33	118
<b>June</b> .....	9	(s)	42	7	5	(s)	(s)	2	7	(s)	10	30	35	<sup>R</sup> 116
<b>July</b> .....	9	(s)	43	6	<sup>R</sup> 5	(s)	(s)	2	7	(s)	<sup>R</sup> 10	30	40	122
<b>August</b> .....	9	(s)	45	6	5	(s)	(s)	2	6	(s)	12	31	40	<sup>R</sup> 124
<b>September</b> .....	8	(s)	43	7	6	(s)	(s)	1	<sup>R</sup> 4	(s)	11	30	36	117
<b>October</b> .....	9	(s)	45	9	5	(s)	(s)	2	4	(s)	11	<sup>R</sup> 32	32	118
<b>November</b> .....	8	(s)	48	8	5	(s)	(s)	1	6	(s)	11	<sup>R</sup> 32	33	<sup>R</sup> 121
<b>December</b> .....	9	(s)	50	<sup>R</sup> 6	5	(s)	(s)	1	7	(s)	11	<sup>R</sup> 31	31	<sup>R</sup> 121
<b>Total</b> .....	104	-2	550	<sup>R</sup> 92	60	(s)	4	18	<sup>R</sup> 61	3	<sup>R</sup> 127	<sup>R</sup> 365	411	<sup>R</sup> 1,428
<b>2020 January</b> .....	8	(s)	51	9	4	(s)	(s)	1	4	(s)	11	30	30	119
<b>February</b> .....	8	(s)	47	9	4	(s)	(s)	1	4	(s)	12	30	28	<sup>R</sup> 114
<b>March</b> .....	8	(s)	47	8	5	(s)	(s)	1	4	(s)	12	30	28	113
<b>April</b> .....	8	(s)	43	3	3	(s)	(s)	1	3	(s)	10	<sup>R</sup> 21	23	95
<b>May</b> .....	8	(s)	41	3	4	(s)	(s)	1	3	(s)	11	23	25	98
<b>June</b> .....	8	(s)	40	2	4	(s)	(s)	1	3	(s)	9	21	30	99
<b>6-Month Total</b> .....	49	-1	270	34	25	(s)	2	7	22	1	64	155	165	638
<b>2019 6-Month Total</b> .....	53	-1	275	51	28	(s)	2	9	27	1	61	179	198	704
<b>2018 6-Month Total</b> .....	54	-1	269	48	25	(s)	2	9	29	2	64	178	214	714

<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> Hydrocarbon gas liquids.

<sup>e</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>f</sup> Aviation gasoline blending components, crude oil, motor gasoline blending components, 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 11.6.

<sup>h</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

<sup>R</sup>=Revised. (s)=Less than 0.5 million metric tons and greater than -0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 11 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 11.7 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 11.5 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>	HGL <sup>d</sup>	Jet Fuel	Lubri- cants	Motor Gasoline <sup>e</sup>	Residual Fuel Oil		
1973 Total	(s)	39	6	163	3	152	6	886	57	1,273	2	1,315
1975 Total	(s)	32	5	155	3	145	6	889	56	1,258	2	1,292
1980 Total	(h)	34	4	204	1	155	6	881	110	1,363	2	1,400
1985 Total	(h)	28	3	232	2	178	6	908	62	1,391	3	1,421
1990 Total	(h)	36	3	268	1	223	7	967	80	1,548	3	1,588
1995 Total	(h)	38	3	307	1	222	6	1,026	72	1,637	3	1,679
2000 Total	(h)	36	3	377	1	254	7	1,119	70	1,830	4	1,870
2001 Total	(h)	35	2	387	1	243	6	1,125	46	1,810	4	1,849
2002 Total	(h)	37	2	394	1	237	6	1,156	53	1,849	4	1,890
2003 Total	(h)	33	2	408	1	231	6	1,159	45	1,853	5	1,891
2004 Total	(h)	32	2	433	1	240	6	1,180	58	1,921	5	1,957
2005 Total	(h)	33	2	444	2	246	6	1,180	66	1,946	5	1,984
2006 Total	(h)	33	2	467	2	240	5	1,187	71	1,974	5	2,012
2007 Total	(h)	35	2	469	1	238	6	1,183	78	1,977	5	2,018
2008 Total	(h)	37	2	424	3	226	5	1,119	73	1,852	5	1,893
2009 Total	(h)	38	2	400	2	204	5	1,107	62	1,782	5	1,825
2010 Total	(h)	38	2	423	(s)	210	6	1,089	70	1,800	5	1,843
2011 Total	(h)	39	2	431	(s)	209	6	1,057	61	1,766	4	1,809
2012 Total	(h)	41	2	411	(s)	206	5	1,051	53	1,728	4	1,773
2013 Total	(h)	47	2	416	(s)	210	5	1,066	46	1,745	4	1,796
2014 Total	(h)	40	2	435	(s)	216	6	1,077	35	1,770	4	1,815
2015 Total	(h)	40	1	441	(s)	227	6	1,083	37	1,795	4	1,839
2016 Total	(h)	40	1	431	(s)	237	6	1,102	49	1,827	4	1,871
2017 Total	(h)	42	1	436	(s)	247	5	1,099	52	1,842	4	1,888
2018 January	(h)	6	(s)	36	(s)	20	(s)	88	3	146	(s)	152
February	(h)	5	(s)	32	(s)	18	(s)	80	4	134	(s)	139
March	(h)	5	(s)	38	(s)	21	(s)	95	3	158	(s)	163
April	(h)	4	(s)	38	(s)	20	(s)	89	5	153	(s)	157
May	(h)	3	(s)	41	(s)	21	(s)	95	4	161	(s)	165
June	(h)	3	(s)	39	(s)	22	(s)	95	3	161	(s)	165
July	(h)	4	(s)	41	(s)	22	(s)	96	5	165	(s)	169
August	(h)	4	(s)	43	(s)	23	(s)	98	4	168	(s)	172
September	(h)	4	(s)	39	(s)	21	(s)	89	4	153	(s)	157
October	(h)	4	(s)	41	(s)	21	(s)	93	3	158	(s)	163
November	(h)	5	(s)	37	(s)	21	(s)	90	4	153	(s)	158
December	(h)	5	(s)	36	(s)	21	(s)	92	5	154	(s)	159
Total	(h)	50	2	460	(s)	250	5	1,099	48	1,864	4	1,918
2019 January	(h)	6	(s)	36	(s)	20	(s)	88	4	<sup>R</sup> 149	(s)	154
February	(h)	5	(s)	33	(s)	18	(s)	<sup>R</sup> 82	<sup>R</sup> 3	<sup>R</sup> 137	(s)	<sup>R</sup> 142
March	(h)	5	(s)	37	(s)	21	(s)	92	3	154	(s)	159
April	(h)	4	(s)	<sup>R</sup> 38	(s)	21	1	91	2	<sup>R</sup> 153	(s)	<sup>R</sup> 157
May	(h)	4	(s)	40	(s)	22	(s)	<sup>R</sup> 95	2	<sup>R</sup> 160	(s)	<sup>R</sup> 164
June	(h)	4	(s)	39	(s)	22	(s)	94	4	159	(s)	163
July	(h)	4	(s)	<sup>R</sup> 40	(s)	23	(s)	95	4	164	(s)	168
August	(h)	4	(s)	<sup>R</sup> 41	(s)	23	(s)	<sup>R</sup> 99	4	167	(s)	<sup>R</sup> 172
September	(h)	4	(s)	38	(s)	<sup>R</sup> 21	(s)	89	<sup>R</sup> 4	<sup>R</sup> 152	(s)	156
October	(h)	4	(s)	41	(s)	22	(s)	93	4	160	(s)	164
November	(h)	5	(s)	37	(s)	21	(s)	89	3	149	(s)	154
December	(h)	5	(s)	36	(s)	<sup>R</sup> 23	(s)	89	<sup>R</sup> 4	<sup>R</sup> 152	(s)	<sup>R</sup> 157
Total	(h)	52	2	<sup>R</sup> 456	(s)	<sup>R</sup> 256	5	<sup>R</sup> 1,095	<sup>R</sup> 42	<sup>R</sup> 1,856	3	<sup>R</sup> 1,912
2020 January	(h)	5	(s)	35	(s)	21	(s)	87	3	147	(s)	153
February	(h)	5	(s)	33	(s)	19	(s)	84	2	138	(s)	144
March	(h)	5	(s)	37	(s)	17	(s)	78	1	134	(s)	139
April	(h)	4	(s)	35	(s)	8	(s)	57	1	102	(s)	106
May	(h)	4	(s)	37	(s)	7	(s)	72	1	117	(s)	121
June	(h)	4	(s)	37	(s)	9	(s)	80	3	129	(s)	133
6-Month Total	(h)	26	1	213	(s)	82	2	458	11	768	1	795
2019 6-Month Total	(h)	26	1	224	(s)	125	2	541	19	912	2	940
2018 6-Month Total	(h)	26	1	224	(s)	122	3	541	22	913	2	941

<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> Hydrocarbon gas liquids.

<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 11.6.

<sup>g</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

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

R=Revised. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 11 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 11.7 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 11.6 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>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 Total</b> .....	1,569	444	6	12	7	26	(s)	11	2,050
<b>2015 Total</b> .....	1,350	527	5	11	7	24	(s)	11	1,913
<b>2016 Total</b> .....	1,241	547	4	12	6	22	(s)	11	1,821
<b>2017 Total</b> .....	1,206	507	4	10	5	19	(s)	11	1,743
<b>2018 January</b> .....	117	43	2	1	2	5	(s)	1	166
February .....	83	38	(s)	1	(s)	1	(s)	1	123
March .....	81	41	(s)	1	(s)	1	(s)	1	124
April .....	73	38	(s)	1	(s)	1	(s)	1	114
May .....	86	46	(s)	1	(s)	1	(s)	1	134
June .....	101	52	(s)	1	(s)	2	(s)	1	156
July .....	115	67	(s)	1	(s)	2	(s)	1	185
August .....	115	65	(s)	1	(s)	2	(s)	1	183
September .....	98	56	(s)	1	(s)	2	(s)	1	156
October .....	88	49	(s)	1	(s)	1	(s)	1	138
November .....	94	42	(s)	1	(s)	2	(s)	1	138
December .....	101	42	(s)	1	(s)	2	(s)	1	145
<b>Total</b> .....	1,151	579	6	10	6	22	(s)	11	1,764
<b>2019 January</b> .....	101	46	(s)	1	1	2	(s)	1	150
February .....	81	42	(s)	1	(s)	1	(s)	1	126
March .....	80	44	(s)	1	(s)	1	(s)	1	126
April .....	60	40	(s)	1	(s)	1	(s)	1	103
May .....	72	46	(s)	1	(s)	2	(s)	1	120
June .....	80	54	(s)	1	(s)	1	(s)	1	137
July .....	101	70	(s)	1	(s)	2	(s)	1	173
August .....	95	71	(s)	1	(s)	2	(s)	1	168
September .....	86	60	(s)	1	(s)	1	(s)	1	148
October .....	68	53	(s)	(s)	(s)	1	(s)	1	122
November .....	76	45	(s)	(s)	(s)	1	(s)	1	122
December .....	73	49	(s)	(s)	(s)	1	(s)	1	124
<b>Total</b> .....	973	619	4	8	5	16	(s)	11	1,619
<b>2020 January</b> .....	66	51	(s)	1	(s)	2	(s)	1	120
February .....	58	48	(s)	(s)	(s)	1	(s)	1	108
March .....	52	48	(s)	1	(s)	1	(s)	1	103
April .....	43	42	(s)	1	(s)	1	(s)	1	86
May .....	48	46	(s)	1	(s)	1	(s)	1	96
June .....	66	57	(s)	1	(s)	2	(s)	1	126
<b>6-Month Total</b> .....	333	292	2	4	2	8	(s)	5	639
<b>2019 6-Month Total</b> .....	475	272	2	5	2	9	(s)	5	761
<b>2018 6-Month Total</b> .....	541	259	4	5	4	13	(s)	5	818

<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 11.7.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy

consumption. See "Section 11 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 11.7 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 11.7 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
<b>1973 Total</b> .....	143	(s)	NA	NA	143	33	1	109	NA	(s)	143
<b>1975 Total</b> .....	140	(s)	NA	NA	141	40	1	100	NA	(s)	141
<b>1980 Total</b> .....	232	(s)	NA	NA	232	80	2	150	NA	(s)	232
<b>1985 Total</b> .....	252	14	3	NA	270	95	2	168	3	1	270
<b>1990 Total</b> .....	208	24	4	NA	237	54	8	147	4	23	237
<b>1995 Total</b> .....	222	30	8	NA	260	49	9	166	8	28	260
<b>2000 Total</b> .....	212	27	9	NA	248	39	9	161	9	29	248
<b>2001 Total</b> .....	188	33	10	(s)	231	35	9	147	10	31	231
<b>2002 Total</b> .....	187	36	12	(s)	235	36	9	144	12	35	235
<b>2003 Total</b> .....	188	36	16	(s)	240	38	9	141	16	37	240
<b>2004 Total</b> .....	199	35	20	(s)	255	38	10	151	20	36	255
<b>2005 Total</b> .....	200	37	23	1	261	40	10	150	23	37	261
<b>2006 Total</b> .....	197	36	31	2	266	36	9	151	33	38	266
<b>2007 Total</b> .....	196	37	39	3	276	39	9	146	41	39	276
<b>2008 Total</b> .....	193	39	55	3	290	44	10	139	57	40	290
<b>2009 Total</b> .....	182	41	62	3	288	47	10	125	64	41	288
<b>2010 Total</b> .....	208	42	73	2	325	51	10	149	74	42	325
<b>2011 Total</b> .....	208	42	73	8	331	49	11	151	80	40	331
<b>2012 Total</b> .....	202	42	73	8	325	41	10	153	80	42	325
<b>2013 Total</b> .....	219	45	75	13	353	54	11	158	87	43	353
<b>2014 Total</b> .....	225	47	76	13	361	54	12	158	88	49	361
<b>2015 Total</b> .....	217	47	79	14	357	48	13	157	90	48	357
<b>2016 Total</b> .....	209	46	81	20	355	41	14	155	98	47	355
<b>2017 Total</b> .....	205	45	82	19	350	40	14	152	98	47	350
<b>2018 January</b> .....	18	4	7	1	30	4	1	13	8	4	30
February .....	17	4	6	1	27	4	1	12	7	4	27
March .....	18	4	7	1	30	4	1	13	8	4	30
April .....	17	4	6	1	28	4	1	12	8	4	28
May .....	18	4	7	2	30	4	1	13	9	4	30
June .....	17	4	7	2	30	4	1	12	8	4	30
July .....	18	4	7	2	31	4	1	13	9	4	31
August .....	18	4	7	2	31	4	1	13	9	4	31
September .....	17	3	6	2	28	4	1	12	8	3	28
October .....	18	4	7	2	30	4	1	13	8	4	30
November .....	17	4	7	1	29	4	1	12	8	4	29
December .....	18	4	7	2	31	4	1	13	8	4	31
<b>Total</b> .....	212	44	82	18	356	49	14	151	97	46	356
<b>2019 January</b> .....	19	3	6	1	30	4	1	14	7	4	30
February .....	17	3	6	1	28	4	1	12	7	3	28
March .....	18	3	7	1	30	4	1	13	8	3	30
April .....	18	3	7	1	29	4	1	13	8	3	29
May .....	18	3	7	2	30	4	1	13	9	4	30
June .....	18	3	7	1	29	4	1	13	8	3	29
July .....	18	3	7	R 2	30	4	1	13	8	4	30
August .....	19	3	7	2	31	4	1	13	R 8	4	31
September .....	17	3	7	1	29	4	1	12	8	3	29
October .....	18	3	7	1	R 30	4	1	13	8	3	R 30
November .....	18	3	7	1	29	4	1	13	8	3	29
December .....	18	3	7	1	30	4	1	13	8	4	30
<b>Total</b> .....	215	39	R 83	17	354	50	13	154	R 97	41	354
<b>2020 January</b> .....	17	3	7	1	29	4	1	13	8	3	29
February .....	16	3	6	1	27	4	1	12	7	3	27
March .....	17	3	6	1	27	4	1	12	7	3	27
April .....	16	3	4	1	25	4	1	12	5	3	25
May .....	17	3	6	1	27	4	1	12	7	3	27
June .....	16	3	6	1	27	4	1	11	7	3	27
<b>6-Month Total</b> .....	100	20	34	8	162	23	6	72	41	19	162
<b>2019 6-Month Total</b> .....	107	20	41	8	176	25	6	77	48	21	176
<b>2018 6-Month Total</b> .....	105	22	40	8	176	24	7	75	47	23	176

<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.

R=Revised. NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Carbon dioxide emissions from biomass energy consumption are excluded from the energy-related carbon dioxide emissions reported in Tables 11.1–11.6. See Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Data are estimates. See "Section 11 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.

**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 non-combustion 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 11.1–11.6 are estimates for U.S. CO<sub>2</sub> emissions from energy consumption, plus the non-combustion use of fossil fuels (excluded are estimates for CO<sub>2</sub> emissions from biomass energy consumption, which appear in MER Table 11.7).

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 11.1–11.6, but appear in MER Table 11.7. 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 11 Methodology and Sources

To estimate carbon dioxide emissions from energy consumption for the *Monthly Energy Review* (MER), Tables 11.1–11.7, the U.S. Energy Information Administration (EIA) uses the following methodology and sources:

### *Step 1. Determine Fuel Consumption*

Coal—Coal sectoral (residential, commercial, coke plants, other industrial, transportation, electric power) consumption data in thousand short tons are from MER Table 6.2. Coal sectoral consumption data are converted to trillion Btu by multiplying by the coal heat content factors in MER Table A5.

Coal Coke Net Imports—Coal coke net imports data in trillion Btu are derived from coal coke imports and exports data in MER Tables 1.4a and 1.4b.

Natural Gas (excluding supplemental gaseous fuels)—Natural gas sectoral consumption data in trillion Btu are from MER Tables 2.2–2.6.

Petroleum—Total and sectoral consumption (product supplied) data in thousand barrels per day for asphalt and road oil, aviation gasoline, distillate fuel oil, hydrocarbon gas liquids (HGL), jet fuel, kerosene, lubricants, motor gasoline, petroleum coke, and residual fuel oil are from MER Tables 3.5 and 3.7a–3.7c. For the component products of HGL (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline) and "other petroleum" (aviation gasoline blending components, crude oil, motor gasoline blending components, naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products), consumption (product supplied) data in thousand barrels per day are from EIA's *Petroleum Supply Annual* (PSA), *Petroleum Supply Monthly* (PSM), and earlier publications (see sources for MER Table 3.5). Petroleum consumption data by product are converted to trillion Btu by multiplying by the petroleum heat content factors in MER Tables A1 and A3.

Biomass—Sectoral consumption data in trillion Btu for wood, biomass waste, fuel ethanol (minus denaturant), and biodiesel are from MER Tables 10.2a–10.2c.

### ***Step 2. Remove Biofuels From Petroleum***

Distillate Fuel Oil—Beginning in 2009, the distillate fuel oil data (for total and transportation sector) in Step 1 include biodiesel and other renewable diesel fuel, which are non-fossil renewable fuels.

2009–2011: To remove the biodiesel portion from distillate fuel oil, data for biodiesel consumption (calculated using data from EIA, 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") 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. To remove the other renewable diesel fuel portion from distillate fuel oil, data for refinery and blender net inputs (from EIA-810, "Monthly Refinery Report," and EIA-815, "Monthly Bulk Terminal and Blender Report") are converted to trillion Btu by multiplying by the other renewable diesel fuel heat content factor in MER Table A1, and then subtracted from the distillate fuel oil consumption values.

2012 forward: To remove the biodiesel portion from distillate fuel oil, data for biodiesel consumption (from MER Table 10.4) is subtracted from the distillate fuel oil consumption values. To remove the other renewable diesel fuel portion from distillate fuel oil, data for refinery and blender net inputs (from EIA-810, "Monthly Refinery Report," and EIA-815, "Monthly Bulk Terminal and Blender Report") are converted to trillion Btu by multiplying by the other renewable diesel fuel heat content factor in MER Table A1, and then subtracted from the distillate fuel oil consumption values.

Motor Gasoline—Beginning in 1993, the motor gasoline data (for total, commercial sector, industrial sector, and transportation sector) in Step 1 include fuel ethanol, a non-fossil renewable fuel. To remove the fuel ethanol portion from motor gasoline, data in trillion Btu for fuel ethanol consumption (from MER Tables 10.2a, 10.2b, and 10.3) are subtracted from the motor gasoline consumption values. (Note that about 2% of fuel ethanol is fossil-based petroleum denaturant, to make the fuel ethanol undrinkable. For 1993–2008, petroleum denaturant is double counted in the PSA product supplied statistics, in both the original product category—e.g., natural gasoline—and also in the finished motor gasoline category; for this time period for MER Section 11, 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 11, petroleum denaturant is left in motor gasoline.)



### ***Step 3. Remove Carbon Sequestered by Non-Combustion Use***

The following fuels have industrial non-combustion uses as chemical feedstocks and other products: coal, natural gas, asphalt and road oil, distillate fuel oil, hydrocarbon gas liquids (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline), lubricants (which have industrial and transportation non-combustion uses), naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, petroleum coke, residual fuel oil, special naphthas, still gas, waxes, and miscellaneous petroleum products. In the non-combustion use of these fuels, some of the carbon is sequestered, and is thus subtracted from the fuel consumption values in Steps 1 and 2.

Estimates of annual non-combustion use and associated carbon sequestration are developed by EIA using the methodology detailed in "Documentation for *Emissions of Greenhouse Gases in the United States 2008*" at [https://www.eia.gov/environment/archive/1605/ggrpt/documentation/pdf/0638\\_2008.pdf](https://www.eia.gov/environment/archive/1605/ggrpt/documentation/pdf/0638_2008.pdf).

To obtain monthly estimates of non-combustion use and associated carbon sequestration, monthly patterns for industrial consumption and product supplied data series are used. For coal non-combustion use, the monthly pattern for coke plants coal consumption from MER Table 6.2 is used. For natural gas, the monthly pattern for other industrial non-CHP natural gas consumption from MER Table 4.3 is used. For distillate fuel oil, petroleum coke, and residual fuel oil, the monthly patterns for industrial consumption from MER Table 3.7b are used. For the other petroleum products, the monthly patterns for product supplied from the PSA and PSM are used. See Tables 1.11a and 1.11b for estimates of fossil fuel non-combustion uses.

### ***Step 4. Determine Carbon Dioxide Emissions From Energy Consumption***

Carbon dioxide (CO<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 non-combustion use in Step 3) by the CO<sub>2</sub> emissions factors at [http://www.eia.gov/environment/archive/1605/ggrpt/excel/CO2\\_coeffs\\_09\\_v2.xls](http://www.eia.gov/environment/archive/1605/ggrpt/excel/CO2_coeffs_09_v2.xls).

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 HGL emissions are the sum of the emissions for the component products (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline); residential, commercial, and transportation sector HGL emissions are estimated by multiplying consumption values in trillion Btu from MER Tables 3.8a and 3.8c by the propane emissions factor; industrial sector HGL emissions are estimated as total HGL emissions minus emissions by the other sectors.

Geothermal and Non-Biomass Waste—Annual CO<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

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## 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	Kerosene	5.670
Aviation Gasoline (Finished)	5.048	Lubricants	6.065
Aviation Gasoline Blending Components	5.048	Motor Gasoline (Finished)—see Tables A2 and A3	
Biodiesel (Biomass-Based Diesel Fuel)	5.359	Motor Gasoline Blending Components (MGBC)	
Crude Oil—see Table A2		Through 2006	5.253
Distillate Fuel Oil—see Table A3 for averages		Beginning in 2007	5.222
15 ppm sulfur and under	5.770	Other Renewable Diesel Fuel	5.494
Greater than 15 ppm to 500 ppm sulfur	5.817	Other Renewable Fuels	5.359
Greater than 500 ppm sulfur	5.825	Oxygenates (excluding Fuel Ethanol)	4.247
Fuel Ethanol—see Table A3		Petrochemical Feedstocks	
Hydrocarbon Gas Liquids		Naphtha Less Than 401°F	5.248
Natural Gas Liquids		Other Oils Equal to or Greater Than 401°F	5.825
Ethane	2.783	Petroleum Coke—see Table A3 for averages	
Propane	3.841	Total, through 2003	6.024
Normal Butane	4.353	Catalyst, beginning in 2004	<sup>a</sup> 6.287
Isobutane	4.183	Marketable, beginning in 2004	5.719
Natural Gasoline (Pentanes Plus)	4.638	Residual Fuel Oil	6.287
Refinery Olefins		Special Naphthas	5.248
Ethylene	2.436	Still Gas	
Propylene	3.835	Through 2015	<sup>b</sup> 6.000
Butylene	4.377	Beginning in 2016	<sup>a</sup> 6.287
Isobutylene	4.355	Unfinished Oils	5.825
Hydrogen	<sup>a</sup> 6.287	Waxes	5.537
Jet Fuel, Kerosene Type	5.670	Miscellaneous Products	5.796
Jet Fuel, Naphtha Type	5.355	Other Hydrocarbons	5.825

<sup>a</sup> Per residual fuel oil equivalent barrel (6.287 million Btu per barrel).

<sup>b</sup> Per fuel oil equivalent barrel (6.000 million Btu per 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 <sup>d</sup>	Crude Oil <sup>a</sup>	Petroleum Products		Total <sup>d</sup>
	Crude Oil <sup>a</sup>	Natural Gas Plant Liquids <sup>b</sup>		Motor Gasoline <sup>c</sup>	Total Products <sup>d</sup>			Motor Gasoline <sup>e</sup>	Total Products <sup>d</sup>	
1950 .....	5.800	4.470	5.943	5.253	6.263	6.080	5.800	5.253	5.751	5.766
1955 .....	5.800	4.346	5.924	5.253	6.234	6.040	5.800	5.253	5.765	5.768
1960 .....	5.800	4.253	5.911	5.253	6.161	6.021	5.800	5.253	5.835	5.834
1965 .....	5.800	4.197	5.872	5.253	6.123	5.997	5.800	5.253	5.742	5.743
1970 .....	5.800	4.090	5.822	5.253	6.088	5.985	5.800	5.253	5.811	5.810
1975 .....	5.800	3.923	5.821	5.253	5.935	5.858	5.800	5.253	5.747	5.748
1980 .....	5.800	3.864	5.812	5.253	5.748	5.796	5.800	5.253	5.841	5.820
1981 .....	5.800	3.860	5.818	5.253	5.659	5.775	5.800	5.253	5.837	5.821
1982 .....	5.800	3.798	5.826	5.253	5.664	5.775	5.800	5.253	5.829	5.820
1983 .....	5.800	3.755	5.825	5.253	5.677	5.774	5.800	5.253	5.800	5.800
1984 .....	5.800	3.745	5.823	5.253	5.613	5.745	5.800	5.253	5.867	5.850
1985 .....	5.800	3.752	5.832	5.253	5.572	5.736	5.800	5.253	5.819	5.814
1986 .....	5.800	3.733	5.903	5.253	5.624	5.808	5.800	5.253	5.839	5.832
1987 .....	5.800	3.742	5.901	5.253	5.599	5.820	5.800	5.253	5.860	5.858
1988 .....	5.800	3.751	5.900	5.253	5.618	5.820	5.800	5.253	5.842	5.840
1989 .....	5.800	3.764	5.906	5.253	5.641	5.833	5.800	5.253	5.869	5.857
1990 .....	5.800	3.758	5.934	5.253	5.614	5.849	5.800	5.253	5.838	5.833
1991 .....	5.800	3.740	5.948	5.253	5.636	5.873	5.800	5.253	5.827	5.823
1992 .....	5.800	3.739	5.953	5.253	5.623	5.877	5.800	5.253	5.774	5.777
1993 .....	5.800	3.735	5.954	5.253	5.539	5.866	5.800	5.253	5.681	5.693
1994 .....	5.800	3.728	5.950	5.253	5.416	5.835	5.800	5.253	5.693	5.704
1995 .....	5.800	3.728	5.938	5.253	5.345	5.830	5.800	5.253	5.692	5.703
1996 .....	5.800	3.703	5.947	5.253	5.373	5.828	5.800	5.253	5.663	5.678
1997 .....	5.800	3.686	5.954	5.253	5.333	5.836	5.800	5.253	5.663	5.678
1998 .....	5.800	3.694	5.953	5.253	5.314	5.833	5.800	5.253	5.505	5.539
1999 .....	5.800	3.663	5.942	5.253	5.291	5.815	5.800	5.253	5.530	5.564
2000 .....	5.800	3.648	5.959	5.253	5.309	5.823	5.800	5.253	5.529	5.542
2001 .....	5.800	3.652	5.976	5.253	5.330	5.838	5.800	5.253	5.637	5.641
2002 .....	5.800	3.646	5.971	5.253	5.362	5.845	5.800	5.253	5.517	5.519
2003 .....	5.800	3.659	5.970	5.253	5.381	5.845	5.800	5.253	5.628	5.630
2004 .....	5.800	3.636	5.981	5.253	5.429	5.853	5.800	5.253	5.532	5.539
2005 .....	5.800	3.638	5.977	5.253	5.436	5.835	5.800	5.253	5.504	5.513
2006 .....	5.800	3.622	5.980	5.253	5.431	5.836	5.800	5.219	5.415	5.423
2007 .....	5.800	3.609	5.985	5.222	5.483	5.857	5.800	5.188	5.465	5.471
2008 .....	5.800	3.614	5.990	5.222	5.459	5.861	5.800	5.215	5.587	5.591
2009 .....	5.800	3.598	5.988	5.222	5.509	5.878	5.800	5.221	5.674	5.677
2010 .....	5.800	3.573	5.989	5.222	5.545	5.892	5.800	5.214	5.601	5.604
2011 .....	5.800	3.573	6.008	5.222	5.538	5.905	5.800	5.216	5.526	5.530
2012 .....	5.800	3.588	6.165	5.222	5.501	6.035	5.800	5.217	5.520	5.526
2013 .....	5.800	3.629	6.010	5.222	5.497	5.899	5.800	5.216	5.470	5.482
2014 .....	5.800	3.640	6.035	5.222	5.518	5.929	5.800	5.218	5.369	5.406
2015 .....	5.717	3.669	6.065	5.222	5.504	5.941	5.682	5.218	5.279	5.319
2016 .....	5.722	3.632	6.053	5.222	5.491	5.929	5.724	5.218	5.184	5.245
2017 .....	5.723	3.612	6.050	5.222	5.489	5.930	5.738	5.222	5.151	5.258
2018 .....	5.706	3.591	6.063	5.222	<sup>d</sup> 5.491	<sup>d</sup> 5.938	5.721	5.222	<sup>d</sup> 5.088	<sup>d</sup> 5.259
2019 .....	5.698	3.607	<sup>R</sup> 6.061	5.222	<sup>R</sup> 5.464	<sup>R</sup> 5.908	5.708	5.222	<sup>R</sup> 5.022	<sup>R</sup> 5.263
2020 .....	<sup>E</sup> 5.698	<sup>E</sup> 3.607	<sup>RE</sup> 6.061	<sup>E</sup> 5.222	<sup>RE</sup> 5.464	<sup>RE</sup> 5.908	<sup>E</sup> 5.708	<sup>E</sup> 5.222	<sup>RE</sup> 5.022	<sup>RE</sup> 5.263

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

<sup>b</sup> Natural gas processing plant production of natural gas liquids (ethane, propane, normal butane, isobutane, and natural gasoline). Through 1980, also includes natural gas processing plant production of finished petroleum products (aviation gasoline, distillate fuel oil, jet fuel, kerosene, motor gasoline, special naphthas, and miscellaneous products).

<sup>c</sup> Excludes fuel ethanol, methyl tertiary butyl ether (MTBE), and other oxygenates blended into motor gasoline.

<sup>d</sup> Through 2017, the imports and exports factors are developed using old hydrocarbon gas liquids heat content values shown in Table A1 of the September 2019 *Monthly Energy Review* (MER). Beginning in 2018, the factors are developed using heat content values shown in Table A1 of the current MER.

<sup>e</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.

R=Revised. E=Estimate.

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

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

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

**Table A3. Approximate Heat Content of Petroleum Consumption and Fuel Ethanol**  
(Million Btu per Barrel)

	Total Petroleum <sup>a</sup> Consumption by Sector						Distillate Fuel Oil Consumption <sup>f</sup>	Hydrocarbon Gas Liquids Consumption <sup>g</sup>	Motor Gasoline (Finished) Consumption <sup>h</sup>	Petroleum Coke Consumption <sup>i</sup>	Fuel Ethanol <sup>j</sup>	Fuel Ethanol Feedstock 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	5.927	5.461	6.254	5.642	5.825	3.810	5.253	6.024	NA	NA
1955 .....	5.470	5.781	5.847	5.407	6.254	5.581	5.825	3.810	5.253	6.024	NA	NA
1960 .....	5.418	5.781	5.772	5.387	6.267	5.542	5.825	3.810	5.253	6.024	NA	NA
1965 .....	5.365	5.761	5.695	5.386	6.267	5.517	5.825	3.810	5.253	6.024	NA	NA
1970 .....	5.262	5.709	5.579	5.393	6.252	5.499	5.825	3.731	5.253	6.024	NA	NA
1975 .....	5.255	5.649	5.490	5.392	6.250	5.489	5.825	3.671	5.253	6.024	NA	NA
1980 .....	5.322	5.752	5.340	5.441	6.254	5.472	5.825	3.669	5.253	6.024	3.564	6.586
1981 .....	5.284	5.693	5.268	5.433	6.258	5.440	5.825	3.632	5.253	6.024	3.564	6.562
1982 .....	5.267	5.699	5.211	5.423	6.258	5.406	5.825	3.588	5.253	6.024	3.564	6.539
1983 .....	5.141	5.592	5.214	5.416	6.255	5.396	5.825	3.535	5.253	6.024	3.564	6.515
1984 .....	5.308	5.658	5.167	5.418	6.251	5.385	5.825	3.580	5.253	6.024	3.564	6.492
1985 .....	5.264	5.598	5.159	5.423	6.247	5.377	5.825	3.584	5.253	6.024	3.564	6.469
1986 .....	5.269	5.632	5.237	5.426	6.257	5.410	5.825	3.631	5.253	6.024	3.564	6.446
1987 .....	5.241	5.594	5.203	5.429	6.249	5.395	5.825	3.663	5.253	6.024	3.564	6.423
1988 .....	5.259	5.598	5.196	5.433	6.250	5.402	5.825	3.643	5.253	6.024	3.564	6.400
1989 .....	5.195	5.549	5.190	5.438	6.240	5.403	5.825	3.679	5.253	6.024	3.564	6.377
1990 .....	5.146	5.554	5.219	5.442	6.244	5.403	5.825	3.630	5.253	6.024	3.564	6.355
1991 .....	5.096	5.529	5.130	5.441	6.246	5.375	5.825	3.626	5.253	6.024	3.564	6.332
1992 .....	5.126	5.514	5.133	5.443	6.238	5.369	5.825	3.643	5.253	6.024	3.564	6.309
1993 .....	5.103	<sup>b</sup> 5.505	<sup>b</sup> 5.140	<sup>b</sup> 5.413	6.230	<sup>b</sup> 5.354	5.825	3.628	<sup>h</sup> 5.217	6.024	3.564	6.287
1994 .....	5.097	5.513	5.115	5.413	6.213	5.344	<sup>f</sup> 5.820	3.657	5.214	6.024	3.564	6.264
1995 .....	5.062	5.476	5.084	5.409	6.187	5.326	5.820	3.641	5.204	6.024	3.564	6.242
1996 .....	4.997	5.431	5.076	5.416	6.194	5.323	5.820	3.629	5.211	6.024	3.564	6.220
1997 .....	4.988	5.389	5.083	5.410	6.198	5.322	5.820	3.627	5.205	6.024	3.564	6.198
1998 .....	4.974	5.363	5.101	5.406	6.210	5.335	5.819	3.619	5.203	6.024	3.564	6.176
1999 .....	4.902	5.289	5.052	5.406	6.204	5.313	5.819	3.628	5.202	6.024	3.564	6.167
2000 .....	4.908	5.313	5.015	5.415	6.188	5.311	5.819	3.610	5.201	6.024	3.564	6.159
2001 .....	4.936	5.323	5.104	5.405	6.199	5.331	5.819	3.604	5.201	6.024	3.564	6.151
2002 .....	4.885	5.291	5.053	5.404	6.172	5.309	5.819	3.588	5.199	6.024	3.564	6.143
2003 .....	4.920	5.313	5.108	5.400	6.182	5.326	5.819	3.610	5.197	6.024	3.564	6.106
2004 .....	4.952	5.324	5.106	5.407	6.134	5.330	5.818	3.591	<sup>i</sup> 5.196	5.982	3.564	6.069
2005 .....	4.915	5.360	5.143	5.408	6.126	5.342	5.818	3.589	5.192	5.982	3.564	6.032
2006 .....	4.886	5.296	5.120	5.405	6.038	5.323	5.803	3.551	5.185	5.987	3.564	5.995
2007 .....	4.833	5.270	5.079	5.376	6.064	5.293	5.784	3.544	5.142	5.996	3.564	5.959
2008 .....	4.772	5.156	5.103	5.342	6.013	5.268	5.780	3.549	5.106	5.992	3.564	5.922
2009 .....	4.664	5.217	<sup>c</sup> 4.959	<sup>c</sup> 5.320	5.987	<sup>c</sup> 5.218	5.781	3.487	5.090	6.017	3.564	5.901
2010 .....	4.664	5.195	<sup>R</sup> 4.921	5.316	5.956	5.204	5.778	3.489	5.067	6.059	3.562	5.880
2011 .....	4.657	5.176	<sup>R</sup> 4.887	5.315	5.900	<sup>R</sup> 5.193	5.776	<sup>R</sup> 3.423	5.063	6.077	3.561	5.859
2012 .....	4.714	5.126	<sup>R</sup> 4.844	5.306	5.925	5.176	5.774	3.440	5.062	6.084	3.560	5.838
2013 .....	4.648	5.053	4.801	5.302	5.892	5.157	5.774	3.468	5.060	6.089	3.560	5.817
2014 .....	4.664	5.016	4.804	5.300	5.906	5.161	5.773	3.439	5.059	6.100	3.559	5.797
2015 .....	4.721	5.050	4.767	5.302	5.915	5.154	5.773	<sup>R</sup> 3.461	5.057	6.085	3.558	5.776
2016 .....	4.631	5.022	<sup>R</sup> 4.798	5.303	5.885	<sup>R</sup> 5.161	5.773	<sup>R</sup> 3.424	5.055	6.104	3.558	5.755
2017 .....	4.623	5.006	<sup>R</sup> 4.768	5.305	5.893	<sup>R</sup> 5.153	5.772	<sup>R</sup> 3.400	5.053	6.132	3.556	5.735
2018 .....	4.620	4.971	<sup>R</sup> 4.664	5.310	5.896	<sup>R</sup> 5.122	5.772	<sup>R</sup> 3.381	5.054	6.122	3.553	5.715
2019 .....	<sup>RE</sup> 4.625	<sup>E</sup> 4.972	<sup>RE</sup> 4.643	<sup>E</sup> 5.306	<sup>P</sup> 5.901	5.111	5.771	<sup>R</sup> 3.401	<sup>R</sup> 5.052	<sup>RE</sup> 6.132	3.555	5.694
2020 .....	<sup>RE</sup> 4.625	<sup>E</sup> 4.972	<sup>RE</sup> 4.643	<sup>E</sup> 5.306	<sup>E</sup> 5.901	<sup>E</sup> 5.111	<sup>E</sup> 5.771	<sup>RE</sup> 3.401	<sup>E</sup> 5.052	<sup>RE</sup> 6.132	<sup>E</sup> 3.555	5.674

<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> Quantity-weighted averages of the major components of hydrocarbon gas liquids are calculated by using heat content values shown in Table A1. The factor for 1967 is used as the estimated factor for 1949–1966.

<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 (natural gasoline, finished motor gasoline, and motor gasoline blending components—see Tables A1 and A3 for factors). The factor for 2009 is used as the estimated factor for 1980–2008.

<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.

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

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

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

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

**Table A4. Approximate Heat Content of Natural Gas**  
(Btu per Cubic Foot)

	Production		Consumption <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	1,032	<sup>c</sup> 1,028	1,031	1,004	1,019
1990 .....	1,105	1,029	1,029	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	1,027	1,025	1,027	1,020	1,016
1994 .....	1,105	1,028	1,029	1,025	1,028	1,022	1,011
1995 .....	1,106	1,026	1,027	1,021	1,026	1,021	1,011
1996 .....	1,109	1,026	1,027	1,020	1,026	1,022	1,011
1997 .....	1,107	1,026	1,027	1,020	1,026	1,023	1,011
1998 .....	1,109	1,031	1,033	1,024	1,031	1,023	1,011
1999 .....	1,107	1,027	1,028	1,022	1,027	1,022	1,006
2000 .....	1,107	1,025	1,026	1,021	1,025	1,023	1,006
2001 .....	1,105	1,028	1,029	1,026	1,028	1,023	1,010
2002 .....	1,103	1,024	1,025	1,020	1,024	1,022	1,008
2003 .....	1,103	1,028	1,029	1,025	1,028	1,025	1,009
2004 .....	1,104	1,026	1,026	1,027	1,026	1,025	1,009
2005 .....	1,104	1,028	1,028	1,028	1,028	1,025	1,009
2006 .....	1,103	1,028	1,028	1,028	1,028	1,025	1,009
2007 .....	1,102	1,027	1,027	1,027	1,027	1,025	1,009
2008 .....	1,100	1,027	1,027	1,027	1,027	1,025	1,009
2009 .....	1,101	1,025	1,025	1,025	1,025	1,025	1,009
2010 .....	1,098	1,023	1,023	1,022	1,023	1,025	1,009
2011 .....	1,142	1,022	1,022	1,021	1,022	1,025	1,009
2012 .....	1,091	1,024	1,025	1,022	1,024	1,025	1,009
2013 .....	1,101	1,027	1,028	1,025	1,027	1,025	1,009
2014 .....	1,116	1,032	1,033	1,029	1,032	1,025	1,009
2015 .....	1,124	1,037	1,038	1,035	1,037	1,025	1,009
2016 .....	1,128	1,037	1,039	1,034	1,037	1,025	1,009
2017 .....	1,129	1,036	1,037	1,034	1,036	1,025	1,009
2018 .....	1,134	1,036	1,038	1,033	1,036	1,025	1,009
2019 .....	<sup>E</sup> 1,134	<sup>P</sup> 1,037	<sup>P</sup> 1,039	<sup>P</sup> 1,034	<sup>P</sup> 1,037	<sup>E</sup> 1,025	<sup>E</sup> 1,009
2020 .....	<sup>E</sup> 1,134	<sup>E</sup> 1,037	<sup>E</sup> 1,039	<sup>E</sup> 1,034	<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.

P=Preliminary. E=Estimate. -- =Not applicable.

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

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

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

**Table A5. Approximate Heat Content of Coal and Coal Coke**  
(Million Btu per Short Ton)

	Coal									Coal Coke
	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>	Total			
				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 .....	19.977	11.496	20.078	28.608	21.055	19.153	19.459	22.327	25.655	24.800
2017 .....	20.025	11.438	19.467	28.673	20.802	18.981	19.303	21.489	24.628	24.800
2018 .....	20.160	11.419	19.269	28.608	20.739	18.915	19.258	20.415	24.294	24.800
2019 .....	<sup>P</sup> 20.092	<sup>P</sup> 10.579	<sup>P</sup> 19.084	<sup>P</sup> 28.627	<sup>P</sup> 20.721	<sup>P</sup> 18.875	<sup>P</sup> 19.264	<sup>P</sup> 20.558	<sup>P</sup> 24.863	<sup>P</sup> 24.800
2020 .....	<sup>E</sup> 20.092	<sup>E</sup> 10.579	<sup>E</sup> 19.084	<sup>E</sup> 28.627	<sup>E</sup> 20.721	<sup>E</sup> 18.875	<sup>E</sup> 19.264	<sup>E</sup> 20.558	<sup>E</sup> 24.863	<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.

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

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

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

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



**Table A6. Approximate Heat Rates for Electricity, and Heat Content of Electricity**  
(Btu per Kilowatthour)

	Approximate Heat Rates <sup>a</sup> for Electricity Net Generation						Heat Content <sup>l</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 .....	10,493	10,811	7,870	9,232	10,459	9,232	3,412
2017 .....	10,465	10,834	7,812	9,213	10,459	9,213	3,412
2018 .....	10,481	11,095	7,821	9,104	10,455	9,104	3,412
2019 .....	<sup>E</sup> 10,481	<sup>E</sup> 11,095	<sup>E</sup> 7,821	<sup>E</sup> 9,104	<sup>E</sup> 10,455	<sup>E</sup> 9,104	3,412
2020 .....	<sup>E</sup> 10,481	<sup>E</sup> 11,095	<sup>E</sup> 7,821	<sup>E</sup> 9,104	<sup>E</sup> 10,455	<sup>E</sup> 9,104	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

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## Approximate Heat Content of Petroleum and Natural Gas Liquids

**Asphalt.** The U.S. Energy Information Administration (EIA) adopted the thermal conversion factor of 6.636 million British thermal units (Btu) per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

**Aviation Gasoline Blending Components.** Assumed by EIA to be 5.048 million Btu per barrel or equal to the thermal conversion factor for **Aviation Gasoline (Finished)**.

**Aviation Gasoline (Finished).** EIA adopted the thermal conversion factor of 5.048 million Btu per barrel as adopted by the Bureau of Mines from the Texas Eastern Transmission Corporation publication *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics.

**Butylene.** EIA estimated the thermal conversion factor to be 4.377 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook, NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute.

**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.** EIA estimated the thermal conversion factor to be 2.783 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook, NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute.

**Ethylene.** EIA adopted the thermal conversion factor of 2.436 million Btu per barrel (0.058 million Btu per gallon) as published in the Federal Register EPA; 40 CFR part 98; e-CRF; Table C1; April 5, 2019. The ethylene higher heating value is determined at 41 degrees Fahrenheit at saturation pressure.

**Hydrocarbon Gas Liquids.** • 1949–1966: EIA used the 1967 factor. • 1967 forward: Calculated annually by EIA as the average of the thermal conversion factors for all hydrocarbon gas liquids consumed (see Table A1) weighted by the quantities consumed. The component products of hydrocarbon gas liquids are ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). For 1967–1980, quantities consumed are from EIA, Energy Data Reports, “Petroleum Statement, Annual.” For 1981 forward, quantities consumed are from EIA, *Petroleum Supply Annual*.

**Hydrogen.** Assumed by EIA to be 6.287 million Btu per barrel or equal to the thermal conversion factor for **Residual Fuel Oil**.

**Isobutane.** EIA estimated the thermal conversion factor to be 4.183 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook, NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute.

**Isobutylene.** EIA estimated the thermal conversion factor to be 4.355 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook, NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute.

**Jet Fuel, Kerosene-Type.** EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel for “Jet Fuel, Commercial” as published by the Texas Eastern Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics.

**Jet Fuel, Naphtha-Type.** EIA adopted the Bureau of Mines thermal conversion factor of 5.355 million Btu per barrel for “Jet Fuel, Military” as published by the Texas Eastern Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics.

**Kerosene.** EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel as reported in a Bureau of Mines internal memorandum, “Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950.”

**Lubricants.** EIA adopted the thermal conversion factor of 6.065 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

**Miscellaneous Products.** EIA adopted the thermal conversion factor of 5.796 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

**Motor Gasoline Blending Components.** • 1949–2006: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for “Gasoline, Motor Fuel” as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Markets 1947–1985*, a 1968 release of historical and projected statistics. • 2007 forward: EIA adopted the thermal conversion factor of 5.222 million Btu per barrel (124,340 Btu per gallon) for gasoline blendstock from U.S. Department of Energy, Argonne National Laboratory, “The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model” (GREET), version GREET1\_2013, October 2013.

**Motor Gasoline Exports.** • 1949–2005: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for “Gasoline, Motor Fuel” as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics. • 2006 forward: Calculated by EIA as the annual quantity-weighted average of the conversion factors for gasoline blendstock and the methyl tertiary butyl ether (MTBE) blended into motor gasoline exports. The factor for gasoline blendstock is 5.253 million Btu per barrel in 2006 and 5.222 million Btu per barrel beginning in 2007 (see **Motor Gasoline Blending Components**). For MTBE, EIA adopted the thermal conversion factor of 4.247 million Btu per barrel

(101,130 Btu per gallon) from U.S. Department of Energy, Argonne National Laboratory, “The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model” (GREET), version GREET1\_2013, October 2013.

**Motor Gasoline (Finished) Consumption.** • 1949–1992: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for “Gasoline, Motor Fuel” as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Markets 1947-1985*, a 1968 release of historical and projected statistics. • 1993–2006: Calculated by EIA as the annual quantity-weighted average of the conversion factors for gasoline blendstock and the oxygenates blended into motor gasoline. The factor for gasoline blendstock is 5.253 million Btu per barrel (the motor gasoline factor used for previous years). The factors for fuel ethanol are shown in Table A3 (see **Fuel Ethanol, Denatured**). The following factors for other oxygenates are from U.S. Department of Energy, Argonne National Laboratory, “The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model” (GREET), version GREET1\_2013, October 2013—methyl tertiary butyl ether (MTBE): 4.247 million Btu per barrel (101,130 Btu per gallon); tertiary amyl methyl ether (TAME): 4.560 million Btu per barrel (108,570 Btu per gallon); ethyl tertiary butyl ether (ETBE): 4.390 million Btu per barrel (104,530 Btu per gallon); methanol: 2.738 million Btu per barrel (65,200 Btu per gallon); and butanol: 4.555 million Btu per barrel (108,458 Btu per gallon). • 2007 forward: Calculated by EIA as the annual quantity-weighted average of the conversion factors for gasoline blendstock and fuel ethanol blended into motor gasoline. The factor for gasoline blendstock is 5.222 million Btu per barrel (124,340 Btu per gallon), which is from the GREET model (see above). The factors for fuel ethanol are shown in Table A3 (see **Fuel Ethanol, Denatured**).

**Motor Gasoline Imports.** • 1949–2006: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for “Gasoline, Motor Fuel” as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics. • 2007 forward: EIA adopted the thermal conversion factor of 5.222 million Btu per barrel (124,340 Btu per gallon) for gasoline blendstock from U.S. Department of Energy, Argonne National Laboratory, “The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model” (GREET), version GREET1\_2013, October 2013.

**Natural Gas Plant Liquids Production.** Calculated annually by EIA as the average of the thermal conversion factors for each natural gas plant liquid produced weighted by the quantities produced.

**Natural Gasoline.** EIA estimated the thermal conversion factor to be 4.638 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook, NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute. EIA assumes a natural gasoline ratio of 29% isopentane, 29% neopentane, 20% normal pentane, 13% normal hexane, 4% cyclohexane, 3% benzene, and 2% toluene in these calculations.

**Normal Butane.** EIA estimated the thermal conversion factor to be 4.353 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook, NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute.

**Other Hydrocarbons.** Assumed by EIA to be 5.825 million Btu per barrel or equal to the thermal conversion factor for **Unfinished Oils**.

**Oxygenates (Excluding Fuel Ethanol).** EIA adopted the thermal conversion factor of 4.247 million Btu per barrel (101,130 Btu per gallon) for methyl tertiary butyl ether (MTBE) from U.S. Department of Energy, Argonne National Laboratory, “The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model” (GREET), version GREET1\_2013, October 2013.

**Petrochemical Feedstocks, Naphtha Less Than 401 Degrees Fahrenheit.** Assumed by EIA to be 5.248 million Btu per barrel or equal to the thermal conversion factor for **Special Naphthas**.

**Petrochemical Feedstocks, Other Oils Equal to or Greater Than 401 Degrees Fahrenheit.** Assumed by EIA to be 5.825 million Btu per barrel or equal to the thermal conversion factor for **Distillate Fuel Oil**.

**Petrochemical Feedstocks, Still Gas.** Assumed by EIA to be 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.** • 1973–1983: Estimated to be 5.418 million Btu per barrel by EIA from data provided by McClanahan Consultants, Inc., Houston, Texas.

**Propane.** EIA estimated the thermal conversion factor to be 3.841 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook*, *NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute.

**Propylene.** EIA estimated the thermal conversion factor to be 3.835 million Btu per barrel, based on data for enthalpy of combustion from the National Institute of Standards and Technology, *NIST Chemistry WebBook*, *NIST Standard Reference Database Number 69*, 2018; and data for density of liquids at 60 degrees Fahrenheit and equilibrium pressure from the American Petroleum Institute.

**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, the average of all natural gas or equal to that for **Distillate Fuel Oil** and first published it in EIA’s *Annual Report to Congress, Volume 3, 1977*.

**Unfractionated Stream.** • 1979–1982: EIA assumed the thermal conversion factor to be 3.800 million Btu per barrel, the average of all natural gas plant liquids calculated on their contribution to total barrels produced.

**Waxes.** EIA adopted the thermal conversion factor of 5.537 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

## Approximate Heat Content of Biofuels

**Biodiesel.** EIA estimated the thermal conversion factor for biodiesel to be 5.359 million Btu per barrel, or 17,253 Btu per pound.

**Biodiesel Feedstock.** EIA used soybean oil input to the production of biodiesel (million Btu soybean oil per barrel biodiesel) as the factor to estimate total biomass inputs to the production of biodiesel. EIA assumed that 7.65 pounds of soybean oil are needed to produce one gallon of biodiesel, and 5.433 million Btu of soybean oil are needed to produce one barrel of biodiesel. EIA also assumed that soybean oil has a gross heat content of 16,909 Btu per pound, or 5.483 million Btu per barrel.

**Ethanol (Undenatured).** EIA adopted the thermal conversion factor of 3.539 million Btu per barrel published in “Oxygenate Flexibility for Future Fuels,” a paper presented by William J. Piel of the ARCO Chemical Company at the National Conference on Reformulated Gasolines and Clean Air Act Implementation, Washington, DC, October 1991.

**Fuel Ethanol (Denatured).** • 1981–2008: EIA used the 2009 factor. • 2009 forward: Calculated by EIA as the annual quantity-weighted average of the thermal conversion factors for undenatured ethanol (3.539 million Btu per barrel), natural gasoline used as denaturant (4.638 million Btu per barrel), and conventional motor gasoline and motor gasoline blending components used as denaturant (5.253 million Btu per barrel). The quantity of ethanol consumed is from EIA’s *Petroleum Supply Annual* (PSA) and *Petroleum Supply Monthly* (PSM), Table 1, data for renewable fuels and oxygenate plant net production of fuel ethanol. The quantity of natural gasoline used as denaturant is from PSA/PSM, Table 1, data for renewable fuels and oxygenate plant net production of natural gasoline, multiplied by -1. The



quantity of conventional motor gasoline and motor gasoline blending components used as denaturant is from PSA/PSM, Table 1, data for renewable fuels and oxygenate plant net production of conventional motor gasoline and motor gasoline blending components, multiplied by -1.

**Fuel Ethanol Feedstock.** EIA used corn input to the production of undenatured ethanol (million Btu corn per barrel undenatured ethanol) as the annual factor to estimate total biomass inputs to the production of undenatured ethanol. EIA used the following observed ethanol yields (in gallons undenatured ethanol per bushel of corn) from U.S. Department of Agriculture: 2.5 in 1980, 2.666 in 1998, 2.68 in 2002; and from University of Illinois at Chicago, Energy Resources Center, “2012 Corn Ethanol: Emerging Plant Energy and Environmental Technologies”: 2.78 in 2008, and 2.82 in 2012. EIA estimated the ethanol yields in other years. EIA also assumed that corn has a gross heat content of 0.392 million Btu per bushel.

## Approximate Heat Content of Natural Gas

**Natural Gas Consumption, Electric Power Sector.** Calculated annually by EIA by dividing the heat content of natural gas consumed by the electric power sector by the quantity consumed. Data are from Form EIA-923, “Power Plant Operations Report,” and predecessor forms.

**Natural Gas Consumption, End-Use Sectors.** Calculated annually by EIA by dividing the heat content of natural gas consumed by the end-use sectors (residential, commercial, industrial, and transportation) by the quantity consumed. The heat content of natural gas consumed by the end-use sectors is calculated as the total heat content of natural gas consumed minus the heat content of natural gas consumed by the electric power sector. The quantity of natural gas consumed by the end-use sectors is calculated as the total quantity of natural gas consumed minus the quantity of natural gas consumed by the electric power sector. Data are from Form EIA-176, “Annual Report of Natural and Supplemental Gas Supply and Disposition”; and Form EIA-923, “Power Plant Operations Report,” and predecessor forms.

**Natural Gas Consumption, Total.** • 1949–1962: EIA adopted the thermal conversion factor of 1,035 Btu per cubic foot as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*. • 1963–1979: EIA adopted the thermal conversion factor calculated annually by the American Gas Association (AGA) and published in *Gas Facts*, an AGA annual publication. • 1980 forward: Calculated annually by EIA by dividing the total heat content of natural gas consumed by the total quantity consumed.

**Natural Gas Exports.** • 1949–1972: Assumed by EIA to be equal to the thermal conversion factor for dry natural gas consumed (see **Natural Gas Consumption, Total**). • 1973 forward: Calculated annually by EIA by dividing the heat content of natural gas exported by the quantity exported. For 1973–1995, data are from Form FPC-14, “Annual Report for Importers and Exporters of Natural Gas.” Beginning in 1996, data are from U.S. Department of Energy, Office of Fossil Energy, *Natural Gas Imports and Exports*.

**Natural Gas Imports.** • 1949–1972: Assumed by EIA to be equal to the thermal conversion factor for dry natural gas consumed (see **Natural Gas Consumption, Total**). • 1973 forward: Calculated annually by EIA by dividing the heat content of natural gas imported by the quantity imported. For 1973–1995, data are from Form FPC-14, “Annual Report for Importers and Exporters of Natural Gas.” Beginning in 1996, data are from U.S. Department of Energy, Office of Fossil Energy, *Natural Gas Imports and Exports*.

**Natural Gas Production, Dry.** Assumed by EIA to be equal to the thermal conversion factor for dry natural gas consumed. See **Natural Gas Consumption, Total**.

**Natural Gas Production, Marketed.** Calculated annually by EIA by dividing the heat content of dry natural gas produced (see **Natural Gas Production, Dry**) and natural gas liquids produced (see **Natural Gas Liquids Production**) by the total quantity of marketed natural gas produced.

## Approximate Heat Content of Coal and Coal Coke

**Coal Coke Imports and Exports.** EIA adopted the Bureau of Mines estimate of 24,800 million Btu per short ton.

**Coal Consumption, Electric Power Sector.** Calculated annually by EIA by dividing the heat content of coal consumed by the electric power sector by the quantity consumed. Data are from Form EIA-923, “Power Plant Operations Report,” and predecessor forms.

**Coal Consumption, Industrial Sector, Coke Plants.** • 1949–2011: Calculated annually by EIA based on the reported volatility (low, medium, or high) of coal received by coke plants. (For 2011, EIA used the following volatility factors, in million Btu per short ton: low volatile—26.680; medium volatile—27.506; and high volatile—25.652.) Data are from Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants,” and predecessor forms. • 2012 forward: Calculated annually by EIA by dividing the heat content of coal received by coke plants by the quantity received. Through June 2014, data are from Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants”; beginning in July 2014, data are from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”).

**Coal Consumption, Industrial Sector, Other.** • 1949–2007: Calculated annually by EIA by dividing the heat content of coal received by manufacturing plants by the quantity received. Data are from Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing Plants,” and predecessor forms. • 2008 forward: Calculated annually by EIA by dividing the heat content of coal received by manufacturing, gasification, and liquefaction plants by the quantity received. Data are from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”).

**Coal Consumption, Residential and Commercial Sectors.** • 1949–1999: Calculated annually by EIA by dividing the heat content of coal received by the residential and commercial sectors by the quantity received. Data are from Form EIA-6, “Coal Distribution Report,” and predecessor forms. • 2000–2007: Calculated annually by EIA by dividing the heat content of coal consumed by commercial combined-heat-and-power (CHP) plants by the quantity consumed. Data are from Form EIA-923, “Power Plant Operations Report,” and predecessor forms. • 2008 forward: Calculated annually by EIA by dividing the heat content of coal received by commercial and institutional users by the quantity received. Data are from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”).

**Coal Consumption, Total.** Calculated annually by EIA by dividing the total heat content of coal consumed by all sectors by the total quantity consumed.

**Coal Exports.** • 1949–2011: Calculated annually by EIA by dividing the heat content of steam coal and metallurgical coal exported by the quantity exported. Data are from U.S. Department of Commerce, U.S. Census Bureau, “Monthly Report EM 545,” and predecessor forms. • 2012 forward: Calculated annually by EIA by dividing the heat content of steam coal and metallurgical coal exported by the quantity exported. The average heat content of steam coal is derived from receipts data from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”), and Form EIA-923, “Power Plant Operations Report.” Through June 2014, the average heat content of metallurgical coal is derived from receipts data from Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants”; beginning in July 2014, the average heat content of metallurgical coal is derived from receipts data from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”). Data for export quantities are from U.S. Department of Commerce, U.S. Census Bureau, “Monthly Report EM 545.”

**Coal Imports.** • 1949–1963: Calculated annually by EIA by dividing the heat content of coal imported by the quantity imported. Data are from U.S. Department of Commerce, U.S. Census Bureau, “Monthly Report IM 145,” and predecessor forms. • 1964–2011: Assumed by EIA to be 25.000 million Btu per short ton. • 2012 forward: Calculated annually by EIA by dividing the heat content of coal imported (received) by the quantity imported (received). Data are from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”); Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants” (data through June 2014); and Form EIA-923, “Power Plant Operations Report.”

**Coal Production.** • 1949–2011: Calculated annually by EIA by dividing the heat content of domestic coal (excluding waste coal) received by the quantity received. Data are from Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Users”; Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants”; Form EIA-923, “Power Plant Operations Report”; and predecessor forms. • 2012 forward: Calculated annually by EIA by dividing the heat content of domestic coal (excluding waste coal) received and exported by the quantity received and exported. Data are from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”); Form EIA-5, “Quarterly Coal Consumption and Quality Report—Coke Plants” (data through June 2014); Form EIA-



923, “Power Plant Operations Report”; U.S. Department of Commerce, U.S. Census Bureau, “Monthly Report EM 545”; and predecessor forms.

**Waste Coal Supplied.** • 1989–2000: Calculated annually by EIA by dividing the heat content of waste coal consumed by the quantity consumed. Data are from Form EIA-860B, “Annual Electric Generator Report—Nonutility,” and predecessor form. • 2001 forward: Calculated by EIA by dividing the heat content of waste coal received (or consumed) by the quantity received (or consumed). Receipts data are from Form EIA-3, “Quarterly Survey of Industrial, Commercial, and Institutional Coal Users” (formerly called “Quarterly Survey of Non-Electric Sector Coal Data”), and predecessor forms. Consumption data are from Form EIA-923, “Power Plant Operations Report,” and predecessor forms.

## Approximate Heat Rates for Electricity

**Electricity Net Generation, Coal.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, “Power Plant Operations Report,” and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using anthracite, bituminous coal, subbituminous coal, lignite, and beginning in 2002, waste coal and coal synfuel.

**Electricity Net Generation, Natural Gas.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, “Power Plant Operations Report,” and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using natural gas and supplemental gaseous fuels.

**Electricity Net Generation, Noncombustible Renewable Energy.** There is no generally accepted practice for measuring the thermal conversion rates for power plants that generate electricity from hydro, geothermal, solar thermal, photovoltaic, and wind energy sources. Therefore, EIA calculates a rate factor that is equal to the annual average heat rate factor for fossil-fueled power plants in the United States (see “Electricity Net Generation, Total Fossil Fuels”). By using that factor it is possible to evaluate fossil fuel requirements for replacing those sources during periods of interruption, such as droughts. See Appendix E for more information.

**Electricity Net Generation, Nuclear.** • 1957–1984: Calculated annually by dividing the total heat content consumed in nuclear generating units by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation were reported on Form FERC-1, “Annual Report of Major Electric Utilities, Licensees, and Others”; Form EIA-412, “Annual Report of Public Electric Utilities”; and predecessor forms. For 1982, the factors were published in EIA, *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1982*, page 215. For 1983 and 1984, the factors were published in EIA, *Electric Plant Cost and Power Production Expenses 1991*, Table 13. • 1985 forward: Calculated annually by EIA by using the heat rate data reported on Form EIA-860, “Annual Electric Generator Report,” and predecessor forms.

**Electricity Net Generation, Petroleum.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, “Power Plant Operations Report,” and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using distillate fuel oil, residual fuel oil, jet fuel, kerosene, petroleum coke, and waste oil.

**Electricity Net Generation, Total Fossil Fuels.** • 1949–1955: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published by EIA in *Thermal-Electric Plant Construction Cost and Annual Production Expenses—1981* and *Steam-Electric Plant Construction Cost and Annual Production Expenses—1978*. • 1956–1988: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published in EIA, *Electric Plant Cost and Power Production Expenses 1991*, Table 9. • 1989–2000: Calculated annually by EIA by using heat rate data reported on Form EIA-860, “Annual Electric Generator Report,” and predecessor forms; and net generation data reported on Form EIA-759, “Monthly Power Plant Report.” The computation includes data for all electric utility steam-electric plants using fossil fuels. • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, “Power Plant Operations Report,” and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using coal, petroleum, natural gas, and other gases (blast furnace gas, propane gas, and other manufactured and waste gases derived from fossil fuels).

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# Appendix B

## Metric Conversion Factors, Metric Prefixes, and Other Physical Conversion Factors

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## Metric Conversion Factors, Metric Prefixes, and Other Physical Conversion Factors

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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)

[a] Exact conversion.

[b] Calculated by the U.S. Energy Information Administration.

[c] The Btu used in this table is the International Table Btu adopted by the Fifth International Conference on Properties of Steam, London, 1956.

[d] To convert degrees Fahrenheit (°F) to degrees Celsius (°C) exactly, subtract 32, then multiply by 5/9.

Notes: • Spaces have been inserted after every third digit to the right of the decimal for ease of reading. • Most metric units belong to the International System of Units (SI), and the liter, hectare, and metric ton are accepted for use with the SI units. For more information about the SI units, see <http://physics.nist.gov/cuu/Units/index.html>.

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

Sources: • General Services Administration, Federal Standard 376B, *Preferred Metric Units for General Use by the Federal Government* (Washington, DC, January 1993), pp. 9–11, 13, and 16. • U.S. Department of Commerce, National Institute of Standards and Technology, *Special Publications 330, 811, and 814*. • American National Standards Institute/Institute of Electrical and Electronic Engineers, ANSI/IEEE Std268-1992, 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>.

Sources: 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> )

[a] Exact conversion.

[b] Calculated by the U.S. Energy Information Administration.

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

Sources: 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.

# Appendix C

**Population, U.S. Gross Domestic Product, and U.S. Gross Output**

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# 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 (2012) Dollars <sup>e</sup>	Implicit Price Deflator <sup>c</sup> (2012 = 1.00000)	Billion Nominal Dollars <sup>d</sup>
	Million People		Percent				
1950 .....	152.3	2,557.6	6.0	299.8	2,289.5	0.13095	577.8
1955 .....	165.9	2,782.1	6.0	425.5	2,871.2	.14819	802.6
1960 .....	180.7	3,043.0	5.9	542.4	3,260.0	.16638	1,006.0
1965 .....	194.3	3,350.8	5.8	742.3	4,170.8	.17798	1,356.0
1970 .....	205.1	3,713.5	5.5	1,073.3	4,951.3	.21677	1,903.0
1975 .....	216.0	4,089.1	5.3	1,684.9	5,644.8	.29849	3,055.3
1980 .....	227.2	4,445.4	5.1	2,857.3	6,759.2	.42273	5,462.0
1981 .....	229.5	4,526.8	5.1	3,207.0	6,930.7	.46273	6,033.5
1982 .....	231.7	4,607.0	5.0	3,343.8	6,805.8	.49132	6,175.0
1983 .....	233.8	4,688.3	5.0	3,634.0	7,117.7	.51056	6,631.0
1984 .....	235.8	4,767.2	4.9	4,037.6	7,632.8	.52898	7,313.8
1985 .....	237.9	4,849.3	4.9	4,339.0	7,951.1	.54571	7,775.7
1986 .....	240.1	4,933.6	4.9	4,579.6	8,226.4	.55670	8,031.0
1987 .....	242.3	5,020.1	4.8	4,855.2	8,511.0	.57046	8,707.5
1988 .....	244.5	5,107.4	4.8	5,236.4	8,866.5	.59059	9,434.2
1989 .....	246.8	5,197.5	4.7	5,641.6	9,192.1	.61374	10,069.8
1990 .....	249.6	5,285.7	4.7	5,963.1	9,365.5	.63671	10,624.6
1991 .....	253.0	5,368.7	4.7	6,158.1	9,355.4	.65825	10,808.0
1992 .....	256.5	5,452.6	4.7	6,520.3	9,684.9	.67325	11,381.0
1993 .....	259.9	5,533.9	4.7	6,858.6	9,951.5	.68920	12,024.4
1994 .....	263.1	5,613.6	4.7	7,287.2	10,352.4	.70392	12,826.8
1995 .....	266.3	5,691.9	4.7	7,639.7	10,630.3	.71868	13,653.2
1996 .....	269.4	5,772.1	4.7	8,073.1	11,031.4	.73183	14,463.4
1997 .....	272.6	5,850.7	4.7	8,577.6	11,521.9	.74445	15,393.3
1998 .....	275.9	5,928.2	4.6	9,062.8	12,038.3	.75283	16,216.8
1999 .....	279.0	6,005.2	4.6	9,630.7	12,610.5	.76370	17,272.3
2000 .....	282.2	6,081.8	4.6	10,252.3	13,131.0	.78078	18,623.9
2001 .....	285.0	6,158.7	4.6	10,581.8	13,262.1	.79790	18,888.3
2002 .....	287.6	6,236.0	4.6	10,936.4	13,493.1	.81052	19,178.3
2003 .....	290.1	6,313.8	4.6	11,458.2	13,879.1	.82557	20,141.2
2004 .....	292.8	6,390.9	4.6	12,213.7	14,406.4	.84780	21,690.2
2005 .....	295.5	6,468.7	4.6	13,036.6	14,912.5	.87421	23,512.9
2006 .....	298.4	6,548.4	4.6	13,814.6	15,338.3	.90066	24,931.4
2007 .....	301.2	6,630.2	4.5	14,451.9	15,626.0	.92486	26,238.5
2008 .....	304.1	6,713.3	4.5	14,712.8	15,604.7	.94285	26,989.2
2009 .....	306.8	6,796.3	4.5	14,448.9	15,208.8	.95004	24,919.5
2010 .....	309.3	6,877.8	4.5	14,992.1	15,598.8	.96111	26,422.4
2011 .....	311.6	6,958.9	4.5	15,542.6	15,840.7	.98118	27,999.5
2012 .....	313.8	7,040.1	4.5	16,197.0	16,197.0	1.00000	29,186.8
2013 .....	316.0	7,122.3	4.4	16,784.9	16,495.4	1.01755	30,291.3
2014 .....	318.3	7,204.2	4.4	17,527.3	16,912.0	1.03638	31,740.0
2015 .....	320.6	7,285.2	4.4	18,238.3	17,432.2	1.04624	32,176.7
2016 .....	322.9	7,365.7	4.4	18,745.1	17,730.5	1.05722	32,838.5
2017 .....	325.0	7,445.4	4.4	19,543.0	18,144.1	1.07710	34,495.4
2018 .....	326.7	7,524.5	4.3	20,611.9	18,687.8	1.10296	36,593.3
2019 .....	328.2	7,604.7	4.3	21,433.2	19,091.7	1.12265	37,806.9

<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 (2012) dollars.

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

<sup>e</sup> See "Chained Dollars" in Glossary.

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" (January 2020). • **World Population: 1950 forward**—DOC, U.S. Census Bureau, International Database (December 2019). • **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 (August 2020), Tables 1.1.5, 1.1.6, and 1.1.9. • **U.S. Gross Output: 1949–1996**—DOC, BEA, GDP by industry (Historical) data (October 2019). **1997 forward**—DOC, BEA, GDP by Industry data (April 2020).



# Appendix D

Estimated Primary Energy Consumption in the  
United States, Selected Years, 1635-1945

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# 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 kilowatthour).**

**Note. Geographic Coverage of Statistics for 1635–1945.**

Table D1 presents estimates of U.S. energy consumption by energy source for a period that begins a century and a half before the original 13 colonies formed a political union and continues through the decades during which the United States was still expanding territorially. The question thus arises, what exactly is meant by “U.S. consumption” of an energy source for those years when the United States did not formally exist or consisted of less territory than is now encompassed by the 50 states and the District of Columbia?

The documents used to assemble the estimates, and (as far as possible) the sources of those documents, were reviewed carefully for clues to geographic coverage. For most energy sources, the extent of coverage expanded more rapidly than the nation, defined as all the official states and the District of Columbia. Estimates or measurements of consumption of each energy source generally appear to follow settlement patterns. That is, they were made for areas of the continent that were settled enough to have economically significant consumption even though those areas were not to become states for years. The wood data series, for example, begins in 1635 and includes 12 of the original colonies (excepting Georgia), as well as Maine, Vermont, and the area that would become the District of Columbia. By the time the series reaches 1810, the rest of the continental states are all included, although the last of the 48 states to achieve statehood did not do so until 1912. Likewise, the coal data series begins in 1850 but includes consumption in areas, such as Utah and Washington (state), which were significant coal producing regions but had not yet attained statehood. (Note: No data were available on state-level historical coal consumption. The coal data shown in Table D1 through 1945 describe *apparent* consumption, i.e., production plus imports minus exports. The geographic coverage for coal was therefore based on a tally of coal-*producing* states listed in various historical issues of *Minerals Yearbook*. It is likely that coal was consumed in states where it was not mined in significant quantities.)

By energy source, the extent of coverage can be summarized as follows:

- Coal—35 coal-producing states by 1885.
- Natural Gas—All 48 contiguous states, the District of Columbia, and Alaska by 1885.
- Petroleum—All 48 contiguous states, the District of Columbia, and Alaska by 1885.
- Conventional Hydroelectric Power—Coverage for 1890 and 1895 is uncertain, but probably the 48 contiguous states and the District of Columbia. Coverage for 1900–1945 is the 48 contiguous states, and the District of Columbia.
- Wood—All 48 contiguous states and the District of Columbia by 1810.

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# Appendix E

## Alternative Approaches for Deriving Energy Contents of Noncombustible Renewables

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## Alternative Approaches for Deriving Energy Contents of Noncombustible Renewables

EIA compiles data on most energy sources in physical units, such as barrels and cubic feet, in order to calculate total primary energy consumption. To sum data for different energy sources, EIA converts the data to the common unit of British thermal units (Btu), a measure that is based on the thermal conversion of energy resources to heat and power.

Noncombustible renewables are resources from which energy is extracted without burning or combusting fuel. They include hydroelectric, geothermal, solar, and wind energy. When noncombustible renewables are used to generate electricity, there is no fuel combustion and, therefore, no set Btu conversion factors for the energy sources.<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>j</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	64	54	94	212	651	1,127	1,777
2016 .....	914	1,559	2,472	64	54	92	210	774	1,321	2,096
2017 .....	1,025	1,742	2,767	64	54	92	210	868	1,475	2,343
2018 .....	998	1,665	2,663	64	54	91	209	930	1,552	2,482
2019 .....	934	1,558	2,492	64	55	91	209	1,024	1,708	2,732

<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)	1	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	2	2	4	58	1,097	1,969	3,067
2005 .....	49	1	2	2	4	58	1,119	2,001	3,120
2006 .....	51	2	3	2	3	61	1,218	2,157	3,375
2007 .....	53	2	5	2	4	66	1,110	1,928	3,038
2008 .....	54	4	7	3	6	74	1,217	2,107	3,323
2009 .....	55	5	10	3	6	78	1,353	2,315	3,668
2010 .....	56	8	15	4	8	91	1,390	2,371	3,761
2011 .....	58	13	24	6	11	112	1,692	2,903	4,595
2012 .....	59	21	38	15	26	159	1,635	2,705	4,339
2013 .....	61	28	50	31	55	225	1,726	2,877	4,602
2014 .....	62	38	68	60	108	338	1,784	2,963	4,746
2015 .....	63	48	84	85	147	427	1,815	2,922	4,737
2016 .....	64	64	109	123	210	570	2,057	3,291	5,348
2017 .....	65	82	139	182	309	777	2,339	3,758	6,097
2018 .....	66	101	168	218	363	916	2,430	3,839	6,270
2019 .....	66	120	199	246	411	1,043	2,508	3,968	6,476

<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

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**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;  $\text{CH}_3\text{-(CH}_2\text{)}_n\text{-OH}$  (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 **natural gasoline**. Oxygenates are reported as **other hydrocarbons**, **hydrogen**, and oxygenates. See **Aviation gasoline, finished**.

**Aviation gasoline, finished:** A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D 910 and Military Specification MIL-G-5572. **Note:** Data on blending components are not counted in data on finished aviation gasoline.

**Barrel (petroleum):** A unit of volume equal to 42 U.S. Gallons.

**Base gas:** The quantity of **natural gas** needed to maintain adequate reservoir pressures and deliverability rates throughout the withdrawal season. Base gas usually is not withdrawn and remains in the reservoir. All natural gas native to a depleted reservoir is included in the base gas volume.

**Biodiesel:** A fuel typically made from soybean, canola, or other vegetable oils; animal fats; and recycled grease. It can serve as a substitute for **petroleum-derived diesel fuel** or **distillate fuel oil**. For U.S. Energy Information Administration

reporting, it is a fuel composed of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM (American Society for Testing & Materials) D 6751.

**Biofuels:** Liquid fuels and blending components produced from **biomass** (plant) feedstocks, used primarily for transportation. See **Biodiesel** and **Fuel ethanol**.

**Biogenic:** Produced by biological processes of living organisms. **Note:** EIA uses the term “biogenic” to refer only to organic nonfossil material of biological origin.

**Biomass:** Organic nonfossil material of biological origin constituting a renewable energy source. See **Biodiesel**, **Biofuels**, **Biomass waste**, **Densified biomass**, **Fuel ethanol**, and **Wood and wood-derived fuels**.

**Biomass-based diesel fuel:** Biodiesel and other renewable **diesel fuel** or diesel fuel blending components derived from **biomass**, but excluding renewable diesel fuel coprocessed with petroleum feedstocks. See **Renewable diesel fuel (other)**.

**Biomass waste:** Organic non-fossil material of biological origin that is a byproduct or a discarded product. “Biomass waste” includes municipal solid waste from **biogenic** sources, landfill gas, sludge waste, agricultural crop byproducts, straw, and other **biomass** solids, liquids, and gases; but excludes **wood and wood-derived fuels** (including **black liquor**), **biofuels** feedstock, **biodiesel**, and **fuel ethanol**. **Note:** EIA “biomass waste” data also include energy crops grown specifically for energy production, which would not normally constitute waste.

**Bituminous coal:** A dense **coal**, usually black, sometimes dark brown, often with well-defined bands of bright and dull material, used primarily as fuel in steam-electric power generation, with substantial quantities also used for heat and power applications in manufacturing and to make **coke**. Bituminous coal is the most abundant coal in active U.S. mining regions. Its moisture content usually is less than 20 percent. The heat content of bituminous coal ranges from 21 to 30 million **Btu** per **short ton** on a moist, mineral-matter-free basis. The heat content of bituminous coal consumed in the United States averages 24 million Btu per short ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

**Black liquor:** A byproduct of the paper production process, alkaline spent liquor that can be used as a source of energy. Alkaline spent liquor is removed from the digesters in the process of chemically pulping wood. After evaporation, the residual “black” liquor is burned as a fuel in a recovery furnace that permits the recovery of certain basic chemicals.

**British thermal unit (Btu):** The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit). See **Heat content**.

**Btu:** See **British thermal unit**.

**Btu conversion factor:** A factor for converting **energy** data between one unit of measurement and **British thermal units (Btu)**. Btu conversion factors are generally used to convert energy data from physical units of measure (such as **barrels**, **cubic feet**, or **short tons**) into the energy-equivalent measure of Btu. (See <http://www.eia.gov/totalenergy/data/monthly/#appendices> for further information on Btu conversion factors.)

**Butane (C<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.

**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>. See **Btu conversion factor** and **Thermal conversion factor**.)

**Cost, insurance, freight (CIF):** A sales transaction in which the seller pays for the transportation and insurance of the goods to the port of destination specified by the buyer.

**Crude oil:** A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, it may also include: (1) small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casing head) gas in lease separators and are subsequently commingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included; (2) small amounts of nonhydrocarbons produced with the oil, such as sulfur and various metals; and (3) drip gases, and liquid hydrocarbons produced from tar sands, oil sands, gilsonite, and oil shale. Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

**Crude oil f.o.b. price:** The crude oil price actually charged at the oil-producing country's port of loading. Includes deductions for any rebates and discounts or additions of premiums, where applicable. It is the actual price paid with no adjustment for credit terms.

**Crude oil (including lease condensate):** A mixture of hydrocarbons that exists in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Drip gases are also included, but topped crude oil (residual oil) and other unfinished oils are excluded. Where identifiable, liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded.

**Crude oil landed cost:** The price of crude oil at the port of discharge, including charges associated with the purchase, transporting, and insuring of a cargo from the purchase point to the port of discharge. The cost does not include charges incurred at the discharge port (e.g., import tariffs or fees, wharfage charges, and demurrage).

**Crude oil refinery input:** The total crude oil put into processing units at refineries.

**Crude oil stocks:** Stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

**Crude oil used directly:** Crude oil consumed as fuel by crude oil pipelines and on crude oil leases.

**Crude oil well:** A well completed for the production of crude oil from one or more oil zones or reservoirs. Wells producing both crude oil and natural gas are classified as oil wells.

**Cubic foot (natural gas):** The amount of **natural gas** contained at standard temperature and pressure (60 degrees Fahrenheit and 14.73 pounds standard per square inch) in a cube whose edges are one foot long.

**Degree Day Normals:** Simple arithmetic averages of monthly or annual degree days over a long period of time (usually the 30-year period 1961–1990). The averages may be simple degree day normals or population-weighted degree day normals.

**Degree Days, Cooling (CDD):** A measure of how warm a location is over a period of time relative to a base temperature, most commonly specified as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the base temperature (65 degrees) from the average of the day's high and low temperatures, with negative values set equal to zero. Each day's cooling degree days are summed to create a cooling degree day measure for a specified reference period. Cooling degree days are used in energy analysis as an indicator of air conditioning energy requirements or use.

**Degree Days, Heating (HDD):** A measure of how cold a location is over a period of time relative to a base temperature, most commonly specified as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the average of the day's high and low temperatures from the base temperature (65 degrees), with negative values set equal to zero. Each day's heating degree days are summed to create a heating degree day measure for a specified reference period. Heating degree days are used in energy analysis as an indicator of space heating energy requirements or use.

**Degree Days, Population-weighted:** Heating or cooling degree days weighted by the population of the area in which the degree days are recorded. To compute state population-weighted degree days, each state is divided into from one to nine climatically homogeneous divisions, which are assigned weights based on the ratio of the population of the division to the total population of the state. Degree day readings for each division are multiplied by the corresponding population weight for each division and those products are then summed to arrive at the state population-weighted degree day figure. To compute national population-weighted degree days, the nation is divided into nine Census regions, each comprising from three to eight states, which are assigned weights based on the ratio of the population of the region to the total population of the nation. Degree day readings for each region are multiplied by the corresponding population weight for each region and those products are then summed to arrive at the national population-weighted degree day figure.

**Denaturant:** Petroleum, typically **natural gasoline** or **conventional motor gasoline**, added to **fuel ethanol** to make it unfit for human consumption. Fuel ethanol is denatured, usually prior to transport from the ethanol production facility, by adding 2 to 5 volume percent denaturant. See **Fuel ethanol** and **Fuel ethanol minus denaturant**.

**Densified biomass fuel:** Raw biomass, primarily wood, that has been condensed into a homogenously sized, energy-dense product, such as wood pellets, intended for use as fuel. It is mainly used for residential and commercial space heating and electricity generation.

**Design electrical rating, net:** The nominal net electrical output of a nuclear unit as specified by the electric utility for the purpose of plant design.

**Development well:** A well drilled within the proved area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.

**Diesel fuel:** A fuel composed of **distillate fuel oils** obtained in petroleum refining operation or blends of such distillate fuel oils with **residual fuel oil** used in motor vehicles. The boiling point and specific gravity are higher for diesel fuels than for gasoline.

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

**Distillate fuel oil:** A general classification for one of the **petroleum** fractions produced in conventional distillation operations. It includes **diesel fuels** and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and **electricity generation**.



**Dry hole:** An exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.

**Dry natural gas production:** See **Natural gas (dry) production**.

**E85:** A fuel containing a mixture of 85 percent **ethanol** and 15 percent **motor gasoline**.

**Electric power plant:** A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

**Electric power sector:** An energy-consuming sector that consists of electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public-i.e., North American Industry Classification System 22 plants. See also **Combined heat and power (CHP) plant**, **Electricity-only plant**, **Electric utility**, and **Independent power producer**.

**Electric utility:** Any entity that generates, transmits, or distributes **electricity** and recovers the cost of its generation, transmission or distribution assets and operations, either directly or indirectly, through cost-based rates set by a separate regulatory authority (e.g., State Public Service Commission), or is owned by a governmental unit or the consumers that the entity serves. Examples of these entities include: investor-owned entities, public power districts, public utility districts, municipalities, rural electric cooperatives, and state and federal agencies. Electric utilities may have Federal Energy Regulatory Commission approval for interconnection agreements and wholesale trade tariffs covering either cost-of-service and/or market-based rates under the authority of the Federal Power Act. See **Electric power sector**.

**Electrical system energy losses:** The amount of energy lost during generation, transmission, and distribution of electricity, including plant and unaccounted-for uses.

**Electricity:** A form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change.

**Electricity generation:** The process of producing electric energy, or the amount of electric energy produced by transforming other forms of energy, commonly expressed in **kilowatthours** (kWh) or megawatthours (MWh).

**Electricity generation, gross:** The total amount of electric energy produced by generating units and measured at the generating terminal in **kilowatthours** (kWh) or megawatthours (MWh).

**Electricity generation, net:** The amount of **gross electricity generation** less **station use** (the **electric energy** consumed at the generating station(s) for station service or auxiliaries). **Note:** Electricity required for pumping at **hydroelectric pumped-storage** plants is regarded as electricity for station service and is deducted from gross generation.

**Electricity only plant:** A plant designed to produce electricity only. See also **Combined heat and power (CHP) plant**.

**Electricity retail sales:** The amount of electricity sold to customers purchasing electricity for their own use and not for resale.

**End use sectors:** The **residential**, **commercial**, **industrial**, and **transportation** sectors of the economy.

**Energy:** The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units.

**Energy consumption:** The use of energy as a source of heat or power or as an input in the manufacturing process.

**Energy service provider:** An energy entity that provides service to a retail or end-use customer.

**Energy use sectors:** A group of major energy-consuming components of U.S. society developed to measure and analyze energy use. The sectors most commonly referred to in EIA are: **residential**, **commercial**, **industrial**, **transportation**, and **electric power**.

**Ethane (C<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 **natural gasoline** or **conventional motor gasoline**. Fuel ethanol is used principally for blending in low concentrations with **motor gasoline** as an **oxygenate** or octane enhancer. In high concentrations, it is used to fuel **alternative-fuel vehicles** specially designed for its use. See **Alternative-fuel vehicle**, **Denaturant**, **E85**, **Ethanol**, **Fuel ethanol minus denaturant**, and **Oxygenates**.

**Fuel ethanol minus denaturant:** An unobserved quantity of anhydrous, **biomass**-derived, undenatured **ethanol** for fuel use. The quantity is obtained by subtracting the estimated **denaturant** volume from **fuel ethanol** volume. Fuel ethanol minus denaturant is counted as **renewable energy**, while denaturant is counted as **nonrenewable fuel**. See **Denaturant**, **Ethanol**, **Fuel ethanol**, **Nonrenewable fuels**, **Oxygenates**, and **Renewable energy**.

**Full power operation:** Operation of a nuclear generating unit at 100 percent of its design capacity. Full-power operation precedes commercial operation.

**Gasohol:** A blend of finished motor gasoline containing alcohol (generally ethanol but sometimes methanol) at a concentration between 5.7 percent and 10 percent by volume. See **Motor gasoline**, **oxygenated**.

**Gas well:** A well completed for production of natural gas from one or more gas zones or reservoirs. Such wells contain no completions for the production of crude oil.

**Geothermal energy:** Hot water or steam extracted from geothermal reservoirs in the earth's crust and used for geothermal heat pumps, water heating, or electricity generation.

**Global warming:** An increase in the near-surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is today most often used to refer to the warming some scientists predict will occur as a result of increased anthropogenic emissions of **greenhouse gases**. See **Climate change**.

**Global warming potential (GWP):** An index used to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emission of one kilogram of a **greenhouse gas** to that from the emission of one kilogram of **carbon dioxide** over a fixed period of time, such as 100 years.

**Greenhouse gases:** Those gases, such as water vapor, **carbon dioxide**, nitrous oxide, **methane**, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride, that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.

**Gross domestic product (GDP):** The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier (that is, the workers and, for property, the owners) may be either U.S. residents or residents of foreign countries.

**GT/IC:** Gas turbine and internal combustion plants.

**Heat content:** The amount of heat energy available to be released by the transformation or use of a specified physical unit of an energy form (e.g., a ton of coal, a barrel of oil, a kilowatthour of electricity, a cubic foot of natural gas, or a pound of steam). The amount of heat energy is commonly expressed in **British thermal units (Btu)**. **Note:** Heat content of combustible energy forms can be expressed in terms of either gross heat content (higher or upper heating value) or net heat content (lower heating value), depending upon whether or not the available heat energy includes or excludes the energy used to vaporize water (contained in the original energy form or created during the combustion process). The U.S. Energy Information Administration typically uses gross heat content values.

**Heat rate:** A measure of generating station thermal efficiency commonly stated as **Btu per kilowatthour**. **Note:** Heat rates can be expressed as either gross or net heat rates, depending whether the electricity output is gross or net generation. Heat rates are typically expressed as net heat rates.

**Hydrocarbon:** An organic chemical compound of **hydrogen** and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, the primary constituent of **natural gas**) to the very heavy and very complex.

**Hydrocarbon gas liquids (HGL):** A group of **hydrocarbons** including **ethane, propane, normal butane, isobutane, and natural gasoline**, and their associated **olefins**, including **ethylene, propylene, butylene, and isobutylene**. As marketed products, HGL represents all **natural gas liquids** (NGL) and olefins. EIA reports production of HGL from refineries (**liquefied refinery gases**, or LRG) and natural gas plants (**natural gas plant liquids**, or NGPL). Excludes liquefied natural gas (LNG). See **Olefinic hydrocarbons (olefins)**.

**Hydroelectric power:** The production of electricity from the kinetic energy of falling water.

**Hydroelectric power plant:** A plant in which the turbine generators are driven by falling water.

**Hydroelectric pumped storage:** Hydroelectricity that is generated during peak load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.

**Hydrogen (H):** The lightest of all gases, hydrogen occurs chiefly in combination with oxygen in water. It also exists in acids, bases, **alcohols, petroleum, and other hydrocarbons**.

**Imports:** Receipts of goods into the 50 states and the District of Columbia from U.S. possessions and territories or from foreign countries.

**Independent power producer:** A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for the generation of electricity for use primarily by the public, and that is not an **electric utility**.

**Industrial sector:** An **energy**-consuming sector that consists of all facilities and equipment used for producing, processing, or assembling goods. The industrial sector encompasses the following types of activity: manufacturing (**NAICS** codes 31-33); agriculture, forestry, fishing and hunting (NAICS code 11); mining, including oil and gas extraction (NAICS code 21); and construction (NAICS code 23). Overall energy use in this sector is largely for process heat and cooling and powering machinery, with lesser amounts used for facility heating, air conditioning, and lighting. Fossil fuels are also used as raw material inputs to manufactured products. **Note:** This sector includes **generators** that produce **electricity** and/or **useful thermal output** primarily to support the above-mentioned industrial activities. See **End use sectors** and **Energy use sectors**.

**Injections (natural gas):** **Natural gas** injected into storage reservoirs.

**Isobutane (C<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 natural gasoline. **Note:** Oxygenates are reported as individual components and are included in the total for other hydrocarbons, hydrogens, and oxygenates.

**Motor gasoline, conventional:** **Finished motor gasoline** not included in the **oxygenated** or **reformulated** motor gasoline categories. **Note:** This category excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock. Conventional motor gasoline can be leaded or unleaded; regular, midgrade, or premium. See **Motor gasoline grades**.

**Motor gasoline (finished):** A complex mixture of relatively volatile **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.

**Non-combustion use:** Fossil fuels (coal, natural gas, and petroleum products) that are not burned to release energy and instead used directly as construction materials, chemical, feedstocks, lubricants, solvents, waxes, and other products.

**Nonhydrocarbon gases:** Typical nonhydrocarbon gases that may be present in reservoir **natural gas** are **carbon dioxide**, helium, hydrogen sulfide, and nitrogen.

**Nonrenewable fuels:** Fuels that cannot be easily made or "renewed," such as **crude oil**, **natural gas**, and **coal**.

**Normal butane (C<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 and former members (with years of membership) include Algeria (1969 forward), Angola (2007 forward), Congo-Brazzaville (2018 forward), Ecuador (1973–1992 and 2007–2019), Equatorial Guinea (2017 forward), Gabon (1974–1994 and 2016 forward), Indonesia (1962–2008 and 2016), Iran (1960 forward), Iraq (1960 forward), Kuwait (1960 forward), Libya (1962 forward), Nigeria (1971 forward), Qatar (1961–2018), Saudi Arabia (1960 forward), United Arab Emirates (1967 forward), and Venezuela (1960 forward).

**Other energy losses:** Energy losses throughout the energy system as they are consumed, usually in the form of heat, that are not separately identified by U.S. Energy Information Administration. Examples include heat lost in the process of burning motor gasoline to move vehicles or in electricity used to power a lightbulb.

**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 or PADD:** 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.

**Petroleum Administration for Defense District (PADD):** The 50 U.S. states and the District of Columbia are divided into five districts, with PADD 1 further split into three subdistricts. PADDs 6 and 7 encompass U.S. territories. The PADDs include the states and territories listed below:

**PADD 1 (East Coast).**

**PADD 1A (New England):** Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

**PADD 1B (Central Atlantic):** Delaware, District of Columbia, Maryland, New Jersey, New York, and Pennsylvania.

**PADD 1C (Lower Atlantic):** Florida, Georgia, North Carolina, South Carolina, Virginia, and West Virginia.

**PADD 2 (Midwest):** Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, and Wisconsin.

**PADD 3 (Gulf Coast):** Alabama, Arkansas, Louisiana, Mississippi, New Mexico, and Texas.

**PADD 4 (Rocky Mountain):** Colorado, Idaho, Montana, Utah, and Wyoming.

**PADD 5 (West Coast):** Alaska, Arizona, California, Hawaii, Nevada, Oregon, and Washington.

**PADD 6:** U.S. Virgin Islands and Puerto Rico.

**PADD 7:** Guam, American Samoa and the Northern Mariana Islands Territory.

**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, hydrocarbon gas liquids, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

**Petroleum stocks, primary:** For individual products, quantities that are held at refineries, in pipelines, and at bulk terminals that have a capacity of 50,000 barrels or more, or that are in transit thereto. Stocks held by product retailers and resellers, as well as tertiary stocks held at the point of consumption, are excluded. Stocks of individual products held at gas processing plants are excluded from individual product estimates but are included in other oils estimates and total.

**Pipeline fuel:** Gas consumed in the operation of pipelines, primarily in compressors.

**Plant condensate:** Liquid **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**. 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)**; **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 average heat rate of fossil-fuel fired plants); **geothermal** electricity net generation (converted to Btu using the average annual heat rate of fossil-fueled fired plants ), geothermal heat pump energy and geothermal direct-use energy; **solar thermal** and **photovoltaic** electricity net generation (converted to Btu

using the average annual heat rate of fossil-fueled fired plants), and solar thermal direct-use energy; wind electricity net generation (converted to Btu using the average annual heat rate of fossil-fueled fired plants); **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). Primary energy consumption includes all non-combustion use of fossil fuels. Primary energy consumption also includes **other energy losses** throughout the energy system. See **Total energy consumption**. Energy sources 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. As a result, U.S. primary energy consumption does include net imports of coal coke, but it does not include the coal coke produced from domestic coal.

**Primary energy production:** Production of **primary energy**. The U.S. Energy Information Administration includes the following in U.S. primary energy production: **coal** production, **waste coal** supplied, and coal refuse recovery; **crude oil** and **lease condensate** production; **natural gas plant liquids** production; **dry natural gas**—excluding **supplemental gaseous fuels**— production; **nuclear electricity net generation** (converted to **Btu** using the nuclear plants **heat rate**); **conventional hydroelectricity** net generation (converted to Btu using the fossil-fueled plants heat rate); **geothermal** electricity net generation (converted to Btu using the fossil-fueled plants heat rate), and geothermal heat pump energy and geothermal direct use energy; **solar thermal** and **photovoltaic** electricity net generation (converted to Btu using the fossil-fueled plants heat rate), and solar thermal direct use energy; **wind** electricity net generation (converted to Btu using the fossil-fueled plants heat rate); **wood and wood-derived fuels** production; **biomass waste** consumption; and **biofuels** feedstock.

**Prime mover:** The engine, turbine, water wheel, or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity directly.

**Product supplied (petroleum):** Approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas-processing plants, blending plants, pipelines, and bulk terminals. In general, product supplied of each product in any given period is computed as follows: field production, plus refinery production, plus imports, plus unaccounted-for crude oil (plus net receipts when calculated on a PAD District basis) minus stock change, minus crude oil losses, minus refinery inputs, and minus exports.

**Propane (C<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 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, and 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)**.

**Small-scale:** Generators at a site that has a total generating nameplate capacity of less than 1 megawatt (MW).

**Solar energy:** See **Solar photovoltaic (PV) energy** and **Solar thermal energy**.

**Solar photovoltaic (PV) energy:** **Energy**, radiated by the sun that is converted into direct-current electricity by solar photovoltaic cells. Examples of solar PV technologies include solar panels on residential and commercial rooftops (generally small-scale solar PV energy) and mirrors or dishes that concentrate solar rays onto solar PV panels (concentrating PV or CPV). Utility-scale solar PV electric generation typically relies on installations of solar PV panels on or near the ground (solar farms).

**Solar thermal energy:** Energy, radiated by the sun that is converted into electricity or heat by means of solar concentrating collectors. Examples of solar thermal energy technologies include pool heaters, dark water bladders, or thermal panels (generally small-scale solar thermal energy). Utility-scale solar thermal electric generation typically relies on a large array of mirrors to heat fluids and turn a turbine, which generates electricity.

**Special naphthas:** All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

**Station use:** Energy that is used to operate an **electric power plant**. It includes energy consumed for plant lighting, power, and auxiliary facilities, regardless of whether the energy is produced at the plant or comes from another source.

**Steam coal:** All nonmetallurgical coal.

**Steam-electric power plant:** A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

**Still gas:** Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are **methane** and **ethane**. May contain **hydrogen** and small/trace amounts of other gases. Still gas is typically consumed as refinery fuel or used as petrochemical feedstock. Still gas burned for refinery fuel may differ in composition from marketed still gas sold to other users. See **Refinery gas**.

**Stocks:** See **Coal stocks**, **Crude oil stocks**, or **Petroleum stocks, primary**.

**Strategic Petroleum Reserve (SPR):** Petroleum stocks maintained by the federal Government for use during periods of major supply interruption.

**Subbituminous coal:** A **coal** whose properties range from those of **lignite** to those of **bituminous coal** and used primarily as fuel for steam-electric power generation. It may be dull, dark brown to black, soft and crumbly, at the lower end of the range, to bright, jet black, hard, and relatively strong, at the upper end. Subbituminous coal contains 20 to 30 percent inherent moisture by weight. The heat content of subbituminous coal ranges from 17 to 24 million **Btu** per **short ton** on a moist, mineral-matter-free basis. The heat content of subbituminous coal consumed in the United States averages 17 to 18 million Btu per ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

**Supplemental gaseous fuels:** Synthetic **natural gas**, **propane**-air, coke oven gas, **still gas (refinery gas)**, **biomass** gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

**Synthetic natural gas (SNG):** (Also referred to as substitute natural gas) A manufactured product, chemically similar in most respects to **natural gas**, resulting from the conversion or reforming of **hydrocarbons** that may easily be substituted for or interchanged with pipeline-quality natural gas.

**Thermal conversion factor:** A factor for converting data between physical units of measure (such as **barrels**, **cubic feet**, or **short tons**) and thermal units of measure (such as **British thermal units**, calories, or joules); or for converting data between different thermal units of measure. See **Btu conversion factor**.

**Total energy consumption:** **Primary energy consumption** in the **end-use sectors**, plus **electricity retail sales** and **electrical system energy losses**. Also includes **other energy losses** throughout the energy system.

**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."

**Uranium:** A heavy, naturally radioactive, metallic element (atomic number 92). Its two principally occurring isotopes are uranium-235 and uranium-238. Uranium-235 is indispensable to the nuclear industry because it is the only isotope existing in nature, to any appreciable extent, that is fissionable by thermal neutrons. Uranium-238 is also important because it absorbs neutrons to produce a radioactive isotope that subsequently decays to the isotope plutonium-239, which also is fissionable by thermal neutrons.

**Uranium concentrate:** A yellow or brown powder obtained by the milling of uranium ore, processing of in situ leach mining solutions, or as a byproduct of phosphoric acid production. See **Uranium oxide**.

**Uranium ore:** Rock containing uranium mineralization in concentrations that can be mined economically, typically one to four pounds of uranium oxide (U<sub>3</sub>O<sub>8</sub>) per ton or 0.05 percent to 0.2 percent U<sub>3</sub>O<sub>8</sub>.

**Uranium oxide (U<sub>3</sub>O<sub>8</sub>):** **Uranium concentrate** or **yellowcake**.

**Useful thermal output:** The thermal energy made available in a combined-heat-and-power system for use in any industrial or commercial process, heating or cooling application, or delivered to other end users, i.e., total thermal energy made available for processes and applications other than electrical generation.

**U.S.S.R.:** See **Union of Soviet Socialist Republics (U.S.S.R.)**.

**Utility-scale:** Generators at a site that has a total generating nameplate capacity of 1 megawatt (MW) or more.

**Vented natural gas:** **Natural gas** released into the air on the production site or at processing plants.

**Vessel bunkering:** Includes sales for the fueling of commercial or private boats, such as pleasure craft, fishing boats, tugboats, and ocean-going vessels, including vessels operated by oil companies. Excluded are volumes sold to the U.S. Armed Forces.

**Waste:** See **Biomass waste** and **Non-biomass waste**.

**Waste coal:** Usable material that is a byproduct of previous **coal** processing operations. Waste coal is usually composed of mixed coal, soil, and rock (mine waste). Most waste coal is burned as-is in unconventional fluidized-bed combustors. For some uses, waste coal may be partially cleaned by removing some extraneous noncombustible constituents. Examples of waste coal include fine coal, coal obtained from a refuse bank or slurry dam, anthracite culm, bituminous gob, and lignite waste.

**Watt (W):** The unit of electrical power equal to one ampere under a pressure of one volt. A watt is equal to 1/746 horsepower.

**Watthour (Wh):** The electrical energy unit of measure equal to one watt of power supplied to, or taken from, an electric circuit steadily for one hour.

**Wax:** A solid or semi-solid material consisting of a mixture of **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, **densified biomass** (including wood pellets), and other wood-based solids and liquids.

**Working gas:** The quantity of **natural gas** in the reservoir that is in addition to the cushion or **base gas**. It may or may not be completely withdrawn during any particular withdrawal season. Conditions permitting, the total working capacity could be used more than once during any season. Volumes of working gas are reported in thousand cubic feet at standard temperature and pressure.

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