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Electric Power Annual 2019

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EIA Electric Industry Data Collection

Chapter 1

National Summary Data

Table 1.1. Total Electric Power Industry Summary Statistics, 2019 and 2018

Net Generation and Consumption of Fuels for January through December														
Total (All Sectors)					Electric Power Sector				Commercial		Industrial		Residential	
Fuel	Facility Type	Year 2019	Year 2018	Percentage Change	Electric Utilities		Independent Power Producers		Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
					Year 2019	Year 2018	Year 2019	Year 2018						
Net Generation (Thousand Megawatthours)														
Coal	Utility Scale Facilities	964,957	1,149,487	-16.1%	722,885	863,505	235,847	278,668	268	303	5,957	7,011	0	0
Petroleum Liquids	Utility Scale Facilities	11,619	16,245	-28.5%	8,410	10,108	2,669	5,487	116	132	424	517	0	0
Petroleum Coke	Utility Scale Facilities	6,819	8,981	-24.1%	5,112	6,817	1,125	1,516	5	7	576	640	0	0
Natural Gas	Utility Scale Facilities	1,585,717	1,469,133	7.9%	784,929	720,206	692,113	645,616	8,610	8,419	100,065	94,892	0	0
Other Gas	Utility Scale Facilities	12,591	13,463	-6.5%	154	151	3,883	3,935	0	0	8,554	9,377	0	0
Nuclear	Utility Scale Facilities	809,409	807,084	0.3%	430,672	424,251	378,738	382,833	0	0	0	0	0	0
Hydroelectric Conventional	Utility Scale Facilities	287,874	292,524	-1.6%	262,364	267,336	24,288	23,812	188	227	1,033	1,149	0	0
Renewable Sources Excluding Hydroelectric	Utility Scale Facilities	439,823	414,292	6.2%	54,212	49,100	354,823	333,491	3,426	3,214	27,361	28,487	0	0
... Wind	Utility Scale Facilities	294,906	272,667	8.2%	42,660	38,466	251,968	233,931	179	174	100	97	0	0
... Solar Thermal and Photovoltaic	Utility Scale Facilities	71,937	63,825	12.7%	6,785	4,916	64,480	58,337	587	525	85	47	0	0
... Wood and Wood-Derived Fuels	Utility Scale Facilities	38,543	40,936	-5.8%	2,784	3,364	9,237	10,021	90	77	26,433	27,475	0	0
... Other Biomass	Utility Scale Facilities	18,964	20,896	-9.2%	1,213	1,344	14,878	16,279	2,129	2,404	743	868	0	0
... Geothermal	Utility Scale Facilities	15,473	15,967	-3.1%	771	1,009	14,260	14,924	442	33	0	0	0	0
Hydroelectric Pumped Storage	Utility Scale Facilities	-5,261	-5,905	-10.9%	-4,261	-4,785	-1,000	-1,119	0	0	0	0	0	0
Other Energy Sources	Utility Scale Facilities	13,334	12,973	2.8%	551	561	7,141	6,677	1,076	1,010	4,567	4,725	0	0
All Energy Sources	Utility Scale Facilities	4,126,882	4,178,277	-1.2%	2,265,028	2,337,250	1,699,628	1,680,917	13,689	13,312	148,537	146,798	0	0
Estimated Small Scale Solar Photovoltaic	Small Scale Facilities	34,957	29,539	18.3%	0	0	0	0	11,002	9,798	3,041	2,636	20,914	17,105
Estimated Total Solar Photovoltaic	All Facilities	103,676	89,773	15.5%	6,757	4,865	61,290	54,796	11,588	10,324	3,127	2,683	20,914	17,105
Estimated Total Solar	All Facilities	106,894	93,365	14.5%	6,785	4,916	64,480	58,337	11,588	10,324	3,127	2,683	20,914	17,105
Consumption of Fossil Fuels for Electricity Generation														
Coal (1000 tons)	Utility Scale Facilities	537,616	636,213	-15.5%	399,541	473,617	135,838	159,976	76	87	2,161	2,534	0	0
Petroleum Liquids (1000 barrels)	Utility Scale Facilities	20,836	28,614	-27.2%	15,677	18,345	4,464	9,467	251	269	444	534	0	0
Petroleum Coke (1000 tons)	Utility Scale Facilities	2,724	3,623	-24.8%	2,067	2,740	478	704	1	2	177	177	0	0
Natural Gas (1000 Mcf)	Utility Scale Facilities	11,600,558	10,833,043	7.1%	5,968,380	5,551,181	4,958,798	4,663,935	55,575	52,650	617,805	565,276	0	0
Consumption of Fossil Fuels for Useful Thermal Output														
Coal (1000 tons)	Utility Scale Facilities	12,397	13,813	-10.3%	2,062	2,268	1,161	1,356	443	490	8,731	9,700	0	0
Petroleum Liquids (1000 barrels)	Utility Scale Facilities	2,162	2,614	-17.3%	71	103	226	354	419	350	1,446	1,807	0	0
Petroleum Coke (1000 tons)	Utility Scale Facilities	839	929	-9.7%	17	12	93	93	6	10	724	814	0	0
Natural Gas (1000 Mcf)	Utility Scale Facilities	1,196,025	1,205,962	-0.8%	42,645	43,156	317,231	331,952	79,734	81,856	756,415	748,997	0	0
Consumption of Fossil Fuels for Electricity Generation and Useful Thermal Output														
Coal (1000 tons)	Utility Scale Facilities	550,013	650,027	-15.4%	401,603	475,885	136,998	161,332	519	577	10,892	12,233	0	0
Petroleum Liquids (1000 barrels)	Utility Scale Facilities	22,998	31,228	-26.4%	15,748	18,448	4,690	9,820	670	619	1,890	2,341	0	0
Petroleum Coke (1000 tons)	Utility Scale Facilities	3,563	4,552	-21.7%	2,083	2,752	571	797	7	12	900	991	0	0
Natural Gas (1000 Mcf)	Utility Scale Facilities	12,796,583	12,039,005	6.3%	6,011,024	5,594,338	5,276,029	4,995,888	135,310	134,507	1,374,220	1,314,273	0	0

Sales, Revenue, and Average Price of Electricity to Ultimate Customers for January through December									
Total U.S. Electric Power Industry									
Sector	Sales of Electricity to Ultimate Customers (million kWh)			Revenue from Sales of Electricity to Ultimate Customers (million dollars)			Average Price of Electricity to Ultimate Customers (cents/kWh)		
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Percentage Change
Residential	1,440,289	1,469,093	-2.0%	187,436	189,033	-0.8%	13.01	12.87	1.1%
Commercial	1,360,877	1,381,755	-1.5%	145,280	147,425	-1.5%	10.68	10.67	0.1%
Industrial	1,002,353	1,000,673	0.2%	68,285	69,218	-1.3%	6.81	6.92	-1.6%
Transportation	7,632	7,665	-0.4%	737	744	-0.8%	9.66	9.70	-0.4%
All Sectors	3,811,150	3,859,185	-1.2%	401,738	406,420	-1.2%	10.54	10.53	0.1%

NM = Not meaningful due to large relative standard error.

W = Withheld to avoid disclosure of individual company data.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Coal generation and consumption includes anthracite, bituminous, subbituminous, lignite, waste coal, refined coal, synthetic coal, and coal-derived synthesis gas.

Petroleum Liquids includes distillate fuel oil, residual fuel oil, jet fuel, kerosene, propane, and waste oil.

Petroleum Coke includes petroleum coke and synthesis gas derived from petroleum coke.

Natural gas includes a small amount of supplemental gaseous fuels that cannot be identified separately.

Other Gases includes blast furnace gas and other manufactured and waste gases derived from fossil fuels.

Wood and Wood-Derived Fuels include wood, black liquor, and other wood waste.

Other Biomass includes biogenic municipal solid waste, landfill gas, sludge waste, agricultural byproducts, and other biomass.

Coal stocks include anthracite, bituminous, subbituminous, lignite, refined coal, and synthetic coal; waste coal is excluded.

Sales of electricity to ultimate customers and net generation may not correspond exactly for a particular month for a variety of reasons (e.g., sales data may include imported electricity).

Net generation is presented for the calendar month while sales of electricity to ultimate customers and associated revenue accumulate from bills collected for periods of time that vary depending

Table 1.2. Summary Statistics for the United States, 2009 - 2019

(From Table 2.1.) Number of Ultimate Customers

Year	Residential	Commercial	Industrial	Transportation	Other	Total
2009	125,208,829	17,562,235	757,537	704	N/A	143,529,305
2010	125,717,935	17,674,338	747,747	239	N/A	144,140,259
2011	126,143,072	17,638,062	727,920	92	N/A	144,509,146
2012	126,832,343	17,729,029	732,385	83	N/A	145,293,840
2013	127,777,153	17,679,562	831,790	75	N/A	146,288,580
2014	128,680,416	17,853,995	839,212	79	N/A	147,373,702
2015	129,811,718	17,985,690	835,536	78	N/A	148,633,022
2016	131,068,760	18,148,353	838,059	86	N/A	150,055,258
2017	132,579,747	18,359,427	840,329	86	N/A	151,779,589
2018	133,893,321	18,605,393	840,321	83	N/A	153,339,118
2019	135,249,616	18,694,240	954,222	83	N/A	154,898,161

(From Table 2.2.) Sales to Ultimate Customers

(Thousand Megawatthours)

Year	Residential	Commercial	Industrial	Transportation	Other	Total
2009	1,364,758	1,306,853	917,416	7,768	N/A	3,596,795
2010	1,445,708	1,330,199	971,221	7,712	N/A	3,754,841
2011	1,422,801	1,328,057	991,316	7,672	N/A	3,749,846
2012	1,374,515	1,327,101	985,714	7,320	N/A	3,694,650
2013	1,394,812	1,337,079	985,352	7,625	N/A	3,724,868
2014	1,407,208	1,352,158	997,576	7,758	N/A	3,764,700
2015	1,404,096	1,360,752	986,508	7,637	N/A	3,758,992
2016	1,411,058	1,367,191	976,715	7,497	N/A	3,762,462
2017	1,378,648	1,352,888	984,298	7,523	N/A	3,723,356
2018	1,469,093	1,381,755	1,000,673	7,665	N/A	3,859,185
2019	1,440,289	1,360,877	1,002,353	7,632	N/A	3,811,150

(From Table 2.3.) Revenue From Ultimate Customers

(Million Dollars)

Year	Residential	Commercial	Industrial	Transportation	Other	Total
2009	157,044	132,747	62,670	828	N/A	353,289
2010	166,778	135,554	65,772	814	N/A	368,918
2011	166,714	135,927	67,606	803	N/A	371,049
2012	163,280	133,898	65,761	747	N/A	363,687
2013	169,131	137,188	67,934	805	N/A	375,058
2014	176,178	145,253	70,855	810	N/A	393,096
2015	177,624	144,781	68,166	771	N/A	391,341
2016	177,077	142,643	66,068	722	N/A	386,509
2017	177,661	144,242	67,691	728	N/A	390,322
2018	189,033	147,425	69,218	744	N/A	406,420
2019	187,436	145,280	68,285	737	N/A	401,738

Table 1.2. Summary Statistics for the United States, 2009 - 2019

(From Table 2.4.) Average Price

(Cents per Kilowatthour)

Year	Residential	Commercial	Industrial	Transportation	Other	Total
2009	11.51	10.16	6.83	10.66	N/A	9.82
2010	11.54	10.19	6.77	10.56	N/A	9.83
2011	11.72	10.24	6.82	10.46	N/A	9.90
2012	11.88	10.09	6.67	10.21	N/A	9.84
2013	12.13	10.26	6.89	10.55	N/A	10.07
2014	12.52	10.74	7.10	10.45	N/A	10.44
2015	12.65	10.64	6.91	10.09	N/A	10.41
2016	12.55	10.43	6.76	9.63	N/A	10.27
2017	12.89	10.66	6.88	9.68	N/A	10.48
2018	12.87	10.67	6.92	9.70	N/A	10.53
2019	13.01	10.68	6.81	9.66	N/A	10.54

(From Tables 2.12. - 2.14.) Trade

(Thousand Megawatthours)

Year	Purchases	Sales for Resale	Imports	Exports
2009	5,028,647	5,065,031	52,191	18,138
2010	5,770,134	5,929,211	45,083	19,106
2011	5,024,621	5,143,121	52,300	15,049
2012	4,984,933	5,013,765	59,257	11,996
2013	4,684,977	4,842,508	68,947	11,373
2014	4,802,227	4,908,839	66,510	13,298
2015	4,761,523	4,797,395	75,770	9,100
2016	4,723,571	4,746,967	72,716	6,214
2017	4,861,257	4,889,947	65,685	9,371
2018	5,168,874	5,127,276	58,261	13,804
2019	5,371,635	5,172,430	59,052	20,008

(From Tables 3.1.A. and 3.1.B.) Net Generation (Thousand Megawatthours)

Generation at Utility Scale Facilities									
Year	Coal	Petroleum	Natural Gas	Other Gas	Nuclear	Hydro Conventional	Hydro Pumped Storage	Geothermal	Wind
2009	1,755,904	38,937	920,979	10,632	798,855	273,445	-4,627	15,009	73,886
2010	1,847,290	37,061	987,697	11,313	806,968	260,203	-5,501	15,219	94,652
2011	1,733,430	30,182	1,013,689	11,566	790,204	319,355	-6,421	15,316	120,177
2012	1,514,043	23,190	1,225,894	11,898	769,331	276,240	-4,950	15,562	140,822
2013	1,581,115	27,164	1,124,836	12,853	789,016	268,565	-4,681	15,775	167,840
2014	1,581,710	30,232	1,126,609	12,022	797,166	259,367	-6,174	15,877	181,655
2015	1,352,398	28,249	1,333,482	13,117	797,178	249,080	-5,091	15,918	190,719
2016	1,239,149	24,205	1,378,307	12,807	805,694	267,812	-6,686	15,826	226,993
2017	1,205,835	21,390	1,296,442	12,469	804,950	300,333	-6,495	15,927	254,303
2018	1,149,487	25,226	1,469,133	13,463	807,084	292,524	-5,905	15,967	272,667
2019	964,957	18,438	1,585,717	12,591	809,409	287,874	-5,261	15,473	294,906

Table 1.2. Summary Statistics for the United States, 2009 - 2019

Generation at Utility Scale Facilities							Small Scale Generation	Utility and Small Scale Generation	
Year	Solar Photo-voltaic	Solar Thermal	Wood and Wood-Derived Fuels	Other Biomass	Other Energy Sources	Total Utility Scale Generation	Estimated Photo-voltaic	Total Photo-voltaic	Total Solar
2009	157	735	36,050	18,443	11,928	3,950,331	--	157	891
2010	423	789	37,172	18,917	12,855	4,125,060	--	423	1,212
2011	1,012	806	37,449	19,222	14,154	4,100,141	--	1,012	1,818
2012	3,451	876	37,799	19,823	13,787	4,047,765	--	3,451	4,327
2013	8,121	915	40,028	20,830	13,588	4,065,964	--	8,121	9,036
2014	15,250	2,441	42,340	21,650	13,461	4,093,606	11,233	26,482	28,924
2015	21,666	3,227	41,929	21,703	14,028	4,077,601	14,139	35,805	39,032
2016	32,670	3,384	40,947	21,813	13,754	4,076,675	18,812	51,483	54,866
2017	50,018	3,269	41,124	21,610	13,096	4,034,271	23,990	74,008	77,277
2018	60,234	3,592	40,936	20,896	12,973	4,178,277	29,539	89,773	93,365
2019	68,719	3,218	38,543	18,964	13,334	4,126,882	34,957	103,676	106,894

(From Tables 4.2.A. and 4.2.B.) Net Summer Generating Capacity (Megawatts)

Utility Scale Capacity									
Year	Coal	Petroleum	Natural Gas	Other Gas	Nuclear	Hydro Conventional	Hydro Pumped Storage	Geothermal	Wind
2009	314,294.1	56,780.5	401,271.8	1,932.4	101,003.7	78,517.7	22,160.4	2,381.9	34,295.8
2010	316,800.1	55,646.9	407,028.4	2,700.3	101,167.4	78,824.7	22,198.9	2,404.6	39,134.5
2011	317,640.3	51,481.6	415,191.3	1,934.2	101,418.8	78,651.6	22,292.6	2,409.2	45,675.9
2012	309,680.4	47,167.2	422,364.4	1,945.6	101,885.0	78,738.0	22,368.3	2,592.1	59,074.8
2013	303,306.3	43,523.0	425,389.7	2,107.8	99,240.3	79,200.0	22,389.3	2,607.0	59,973.4
2014	299,094.2	41,135.4	432,150.3	1,914.3	98,569.3	79,677.3	22,485.1	2,514.3	64,231.5
2015	279,719.9	36,830.3	439,425.4	2,500.4	98,672.0	79,664.2	22,575.1	2,541.5	72,573.4
2016	266,619.9	34,382.4	446,823.2	2,456.9	99,564.8	79,912.9	22,778.7	2,516.6	81,286.6
2017	256,547.3	33,306.7	456,011.6	2,375.8	99,628.9	79,794.5	22,810.4	2,483.3	87,597.5
2018	242,785.6	32,218.2	470,236.9	2,543.9	99,432.9	79,871.8	22,830.2	2,444.3	94,417.7
2019	228,657.4	31,400.3	476,567.4	2,499.2	98,119.0	79,773.1	22,778.3	2,555.4	103,571.2

Utility Scale Capacity							Small Scale Capacity	Utility and Small Scale Capacity	
Year	Solar Photo-voltaic	Solar Thermal	Wood and Wood-Derived Fuels	Other Biomass	Other Energy Sources	Total Utility Scale Capacity	Estimated Photo-voltaic	Total Photo-voltaic	Total Solar
2009	145.5	473.0	6,939.3	4,316.5	887.8	1,025,400.4	--	145.5	618.5
2010	393.4	473.0	7,037.3	4,368.5	883.8	1,039,061.8	--	393.4	866.4
2011	1,052.0	471.5	7,076.5	4,535.9	1,419.6	1,051,251.0	--	1,052.0	1,523.5
2012	2,694.1	476.0	7,507.6	4,810.6	1,728.9	1,063,033.0	--	2,694.1	3,170.1
2013	5,336.1	1,286.4	8,354.2	5,043.0	2,307.0	1,060,063.5	--	5,336.1	6,622.5
2014	8,656.6	1,666.7	8,368.1	5,166.5	2,792.6	1,068,422.2	7,326.6	15,983.2	17,649.9
2015	11,905.4	1,757.9	8,968.9	5,124.5	1,795.6	1,064,054.5	9,778.5	21,683.9	23,441.8
2016	20,192.9	1,757.9	8,936.1	5,088.8	2,015.1	1,074,332.8	12,765.1	32,958.0	34,715.9

Table 1.2. Summary Statistics for the United States, 2009 - 2019

2017	25,209.0	1,757.9	8,830.9	5,129.5	2,886.3	1,084,369.6	16,147.8	41,356.8	43,114.7
2018	30,120.5	1,757.9	8,694.6	5,038.6	2,346.7	1,094,739.8	19,547.1	49,667.6	51,425.5
2019	35,710.2	1,758.1	8,374.5	4,738.8	2,606.4	1,099,109.3	23,213.6	58,923.8	60,681.9

(From Chapter 5.) Consumption of Fossil Fuels

Year	For Electricity Generation				For Useful Thermal Output			
	Coal (Thousand Tons)	Petroleum (Thousand Barrels)	Natural Gas (Millions of Cubic Feet)	Other Gas (Millions of BTU)	Coal (Thousand Tons)	Petroleum (Thousand Barrels)	Natural Gas (Millions of Cubic Feet)	Other Gas (Millions of BTU)
2009	934,683	67,668	7,121,069	83,593	20,507	13,161	816,787	175,671
2010	979,684	65,071	7,680,185	90,058	21,727	10,161	821,775	172,081
2011	934,938	52,387	7,883,865	91,290	21,532	9,223	839,681	191,138
2012	825,734	40,977	9,484,710	103,353	19,333	9,828	886,103	199,121
2013	860,729	47,492	8,596,299	115,303	18,350	10,886	882,385	189,902
2014	853,634	53,593	8,544,387	110,010	18,107	9,513	865,146	194,088
2015	739,594	49,145	10,016,576	105,997	16,632	8,864	935,098	183,596
2016	677,371	43,671	10,170,110	73,785	16,586	7,770	1,151,866	221,835
2017	663,911	39,144	9,508,062	70,721	14,667	6,899	1,168,544	227,981
2018	636,213	46,727	10,833,043	78,757	13,813	7,261	1,205,962	274,612
2019	537,616	34,454	11,600,558	71,854	12,397	6,357	1,196,025	209,000

Year	Total			
	Coal (Thousand Tons)	Petroleum (Thousand Barrels)	Natural Gas (Millions of Cubic Feet)	Other Gas (Millions of BTU)
2009	955,190	80,830	7,937,856	259,265
2010	1,001,411	75,231	8,501,960	262,138
2011	956,470	61,610	8,723,546	282,428
2012	845,066	50,805	10,370,812	302,475
2013	879,078	58,378	9,478,685	305,205
2014	871,741	63,106	9,409,532	304,098
2015	756,226	58,009	10,951,674	289,593
2016	693,958	51,441	11,321,975	295,619
2017	678,578	46,043	10,676,606	298,702
2018	650,027	53,988	12,039,005	353,369
2019	550,013	40,811	12,796,583	280,854

(From Tables 6.1. and 7.1)

Year End Stocks, Annual Receipts and Average Costs

Year	Electric Power Sector Year End Stocks		Annual Receipts at All Electricity Generators			Average Cost of Fuel at All Electricity Generators		
	Coal (Thousand Tons)	Petroleum (Thousand Barrels)	Coal (Thousand Tons)	Petroleum (Thousand Barrels)	Natural Gas (Millions of Cubic Feet)	Coal (Dollars per MMBtu)	Petroleum (Dollars per MMBtu)	Natural Gas (Dollars per MMBtu)
2009	189,467	45,575	981,477	88,951	8,118,550	2.21	7.02	4.74
2010	174,917	39,936	979,918	75,285	8,673,070	2.27	9.54	5.09
2011	172,387	36,282	956,538	66,058	9,056,164	2.39	12.48	4.72
2012	185,116	33,336	841,183	40,364	9,531,389	2.38	12.48	3.42

Table 1.2. Summary Statistics for the United States, 2009 - 2019

2013	147,884	32,336	823,222	43,714	8,503,424	2.34	11.57	4.33
2014	151,548	36,459	854,560	54,488	8,431,423	2.37	11.60	5.00
2015	195,548	38,396	782,929	48,804	9,842,581	2.22	6.74	3.23
2016	162,009	34,818	650,770	37,637	10,271,180	2.11	5.24	2.87
2017	137,687	32,407	642,364	32,672	9,628,733	2.06	7.10	3.37
2018	102,793	28,674	596,215	37,341	10,885,764	2.06	9.68	3.55
2019	128,180	28,317	560,153	24,556	11,693,486	2.02	9.07	2.89

(From Table 9.1.) Emissions

(Thousand Metric Tons)

Year	Carbon Dioxide (CO ₂)	Sulfur Dioxide (SO ₂)	Nitrogen Oxides (NO _x)
2009	2,269,508	5,970	2,395
2010	2,388,596	5,400	2,491
2011	2,287,071	4,845	2,406
2012	2,156,875	3,704	2,148
2013	2,173,806	3,609	2,163
2014	2,168,284	3,454	2,100
2015	2,031,452	2,548	1,824
2016	1,928,401	1,807	1,630
2017	1,849,750	1,657	1,506
2018	1,874,346	1,571	1,485
2019	1,724,396	1,267	1,342

(From Tables 10.6. and 10.7.) Energy Efficiency

Year	Savings		Incremental Costs		Life Cycle Savings		Life Cycle Costs	
	Energy (MWh)	Peak Demand (MW)	Incentives (thousand dollars)	Other (thousand dollars)	Energy (MWh)	Peak Demand (MW)	Incentives (thousand dollars)	Other (thousand dollars)
2013	24,653,124	11,078	2,871,654	1,944,597	249,940,645	10,956	6,028,810	3,994,889
2014	26,466,020	6,453	3,410,854	2,209,098	301,956,123	8,040	4,007,452	3,120,898
2015	26,129,489	5,952	3,448,286	2,283,300	296,346,403	7,096	4,255,368	3,710,453
2016	27,500,224	5,658	3,570,950	2,522,854	354,347,692	7,050	4,126,758	3,432,717
2017	29,899,028	6,071	3,664,407	2,297,957	374,826,892	5,951	4,849,803	3,162,995
2018	28,415,037	6,309	3,484,767	2,165,981	359,446,175	6,075	4,177,905	4,179,320
2019	28,562,529	7,135	3,657,477	2,288,028	355,216,512	6,931	4,351,926	3,655,607

(From Tables 10.8. and 10.9.) Demand Response

Year	Yearly Energy and Demand Savings				Program Costs	
	Customers	Energy (MWh)	Potential Peak Demand (MW)	Actual Peak Demand (MW)	Incentives (thousand dollars)	Other (thousand dollars)
2013	9,187,350	1,401,987	27,095	11,883	1,112,782	485,133
2014	9,265,629	1,436,449	31,191	12,683	1,217,796	447,659
2015	9,094,138	1,251,006	32,875	13,036	1,120,446	381,918
2016	9,839,355	1,336,136	35,924	11,841	1,039,890	379,707
2017	9,440,938	1,310,862	31,508	12,248	1,003,124	370,700
2018	9,752,238	1,426,211	30,895	12,522	1,189,284	360,718
2019	10,932,845	1,462,735	31,020	11,334	1,118,882	343,214

Table 1.2. Summary Statistics for the United States, 2009 - 2019

Coal includes anthracite, bituminous, subbituminous and lignite coal. Starting in 2002 waste coal is included in all coal metrics except for year-end stocks. Starting in 2002 Synthetic coal is included in all coal metrics. Starting in 2011 Coal-derived synthesis gas is included in all coal metrics. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum includes Distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, petroleum coke (converted to liquid petroleum, see Technical Notes for conversion methodology) and waste oil. Prior to 2011 propane was in the Other Gas category. Beginning in 2004 small quantities of waste oil were excluded from petroleum stocks.

Natural gas includes a small number of generators for which waste heat is the primary energy source. Natural gas also includes a small amount of supplemental gaseous fuels that cannot be identified separately.

Prior to 2011, synthesis gas derived from petroleum coke was in the Other Gas category. Other Gas includes blast furnace gas, propane gas, and other manufactured and waste gases derived from fossil fuels.

Conventional hydroelectric power excludes pumped storage facilities.

Wood and wood derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other biomass includes biogenic municipal solid waste, landfill gas, sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases). The reported summer capacity for other biomass also includes non-biogenic municipal solid waste.

Pumped storage is the capacity to generate electricity from water previously pumped to an elevated reservoir and then released through a conduit to turbine generators located at a lower level. The generation from a hydroelectric pumped storage facility is the net value of production minus the energy used for pumping.

Other energy sources include batteries, hydrogen, purchased steam, sulfur, tire-derived fuels and other miscellaneous energy sources, and for generation values, non-biogenic municipal solid waste.

Costs of fuels for 2002 through 2007 include data from the Form EIA-423 for independent power producers, commercial power-producing facilities, and industrial power-producing facilities. Beginning in 2008, data are collected on the Form EIA-923 for utilities, independent power producers, commercial power-producing facilities, and industrial power-producing facilities. Receipts, cost, and quality data are collected from plants above a 50 MW threshold, and imputed for plants between 1 and 50 MW. Therefore, there may be a notable increase in fuel receipts beginning with 2008 data. Receipts of coal include imported coal.

N/A = Not available.

Notes: See Glossary reference for definitions. See Technical Notes Appendix for conversion to different units of measure. Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator. Dual-fired capacity returned to respective fuel categories for current and all historical years. New fuel switchable capacity tables have replaced dual-fired breakouts. Totals may not equal sum of components because of independent rounding.

In 2013, EIA revised its approach to estimating imports from Mexico.

Sources: U.S. Energy Information Administration Form EIA-411, 'Coordinated Bulk Power Supply Program Report;' Form EIA-412, 'Annual Electric Industry Financial Report'. The Form EIA-412 was terminated in 2003; Form EIA-767, 'Steam-Electric Plant Operation and Design Report' was suspended; Form EIA-860, 'Annual Electric Generator Report;' Form EIA-861, 'Annual Electric Power Industry Report;' Form EIA-923, 'Power Plant Operations Report' replaces several form(s) including: Form EIA-906, 'Power Plant Report;' Form EIA-920 'Combined Heat and Power Plant Report;' Form EIA-423, 'Monthly Cost and Quality of Fuels for Electric Plants Report;' and FERC Form 423, 'Monthly Report of Cost and Quality of Fuels for Electric Plants,' and their predecessor forms. Federal Energy Regulatory Commission, FERC Form 1, 'Annual Report of Major Utilities, Licensees and Others;' FERC Form 1-F, 'Annual Report for Nonmajor Public Utilities and Licensees;' Rural Utilities Service (RUS) Form 7, 'Operating Report;' RUS Form 12, 'Operating Report;'

Imports and Exports: National Energy Board of Canada; FERC 714, Annual Electric Balancing Authority Area and Planning Report; California Energy Commission; and EIA estimates

Table 1.3. Supply and Disposition of Electricity, 2009 through 2019

(From Chapter 3.) Supply (Thousand Megawatthours)

Year	Generation				Total Imports	Total Supply	
	Electric Utilities	IPP (Non-CHP)	IPP (CHP)	Commercial Sector			Industrial Sector
2009	2,372,776	1,277,916	159,146	8,165	132,329	52,191	4,002,522
2010	2,471,632	1,338,712	162,042	8,592	144,082	45,083	4,170,143
2011	2,460,851	1,331,303	156,032	10,080	141,875	52,300	4,152,441
2012	2,339,172	1,386,991	164,194	11,301	146,107	59,257	4,107,022
2013	2,388,058	1,368,038	147,619	12,234	150,015	68,947	4,134,911
2014	2,382,473	1,404,324	150,205	12,520	144,083	66,510	4,160,116
2015	2,315,323	1,448,799	155,173	12,595	145,712	75,770	4,153,371
2016	2,304,923	1,459,624	153,532	12,706	145,890	72,716	4,149,391
2017	2,274,279	1,464,590	138,584	13,060	143,758	65,685	4,099,955
2018	2,337,250	1,538,235	142,682	13,312	146,798	58,261	4,236,538
2019	2,265,028	1,559,804	139,824	13,689	148,537	59,052	4,185,935

(From Chapter 2.) Disposition (Thousand Megawatthours)

Year	Retail Sales			Direct Use	Total Exports	Losses and Unaccounted For	Total Disposition
	Full-Service Providers	Energy-Only Providers	Facility Direct				
2009	3,289,877	294,229	12,689	126,938	18,138	260,650	4,002,522
2010	3,365,338	379,277	10,226	131,910	19,106	264,285	4,170,143
2011	3,272,622	466,964	10,259	132,754	15,049	254,792	4,152,441
2012	3,172,096	514,290	8,263	137,657	11,996	262,720	4,107,022
2013	3,147,192	559,211	18,465	143,462	11,373	255,208	4,134,911
2014	3,184,841	563,441	16,418	138,574	13,298	243,544	4,160,116
2015	3,191,425	554,944	12,624	141,168	9,100	244,112	4,153,371
2016	3,189,541	560,015	12,905	139,844	6,214	240,871	4,149,391
2017	3,149,973	559,727	13,656	141,114	9,371	226,114	4,099,955
2018	3,260,944	584,077	14,164	144,114	13,804	219,434	4,236,538
2019	3,213,129	583,431	14,591	143,458	20,008	211,318	4,185,935

N/A = Not Available.

Facility Direct Retail Sales typically represent bilateral electric power sales between industrial and commercial generating facilities.

Direct Use represents commercial and industrial facility use of onsite net electricity generation; electricity sales or transfers to adjacent or co-located facilities; and barter transactions. Losses and Unaccounted For includes: (1) reporting by utilities and power marketers that represent losses incurred in transmission and distribution, as well as volumes unaccounted for in their own energy balance; and (2) discrepancies among the differing categories upon balancing the table.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report" and predecessor form(s) including U.S. Energy Information Administration, Form EIA-906, "Power Plant Report;" and Form EIA-920, "Combined Heat and Power Plant Report;" Form EIA-861, "Annual Electric Power Industry Report;" and predecessor forms. Imports and Exports: Mexico data - DOE, Fossil Fuels, Office of Fuels Programs, Form OE-781R, "Annual Report of International Electrical Export/Import Data;" Canada data - National Energy Board of Canada (metered energy firm and interruptible).

Chapter 2

Electricity Sales

Table 2.1. Number of Ultimate Customers Served by Sector, by Provider, 2009 through 2019

Year	Residential	Commercial	Industrial	Transportation	Total
Total Electric Industry					
2009	125,208,829	17,562,235	757,537	704	143,529,305
2010	125,717,935	17,674,338	747,747	239	144,140,259
2011	126,143,072	17,638,062	727,920	92	144,509,146
2012	126,832,343	17,729,029	732,385	83	145,293,840
2013	127,777,153	17,679,562	831,790	75	146,288,580
2014	128,680,416	17,853,995	839,212	79	147,373,702
2015	129,811,718	17,985,690	835,536	78	148,633,022
2016	131,068,760	18,148,353	838,059	86	150,055,258
2017	132,579,747	18,359,427	840,329	86	151,779,589
2018	133,893,321	18,605,393	840,321	83	153,339,118
2019	135,249,616	18,694,240	954,222	83	154,898,161
Full-Service Providers					
2009	122,560,533	16,852,697	736,326	666	140,150,222
2010	121,555,089	16,675,341	718,652	198	138,949,280
2011	120,306,190	16,321,174	682,906	56	137,310,326
2012	118,650,233	16,111,883	681,074	48	135,443,238
2013	116,624,884	15,817,442	780,759	48	133,223,133
2014	117,230,661	15,942,158	789,803	50	133,962,672
2015	119,477,949	16,108,931	787,466	48	136,374,394
2016	120,875,548	16,197,174	788,641	53	137,861,416
2017	121,964,414	16,329,808	789,732	52	139,084,006
2018	122,767,933	16,415,207	794,548	49	139,977,737
2019	122,422,722	16,367,082	904,443	50	139,694,297
Energy-Only Providers					
2009	2,648,296	709,538	21,211	38	3,379,083
2010	4,162,846	998,997	29,095	41	5,190,979
2011	5,836,882	1,316,888	45,014	36	7,198,820
2012	8,182,110	1,617,146	51,311	35	9,850,602
2013	11,152,269	1,862,120	51,031	27	13,065,447
2014	11,449,755	1,911,837	49,409	29	13,411,030
2015	10,333,769	1,876,759	48,070	30	12,258,628
2016	10,193,212	1,951,179	49,418	33	12,193,842
2017	10,615,333	2,029,619	50,597	34	12,695,583
2018	11,125,388	2,190,186	45,773	34	13,361,381
2019	12,826,894	2,327,158	49,779	33	15,203,864

N/A = Not Available.

Pursuant to applicable Texas statutes establishing competitive electricity markets within the Electric Reliability Council of Texas (ERCOT), all customers served by Retail Energy Providers must be provided bundled energy and delivery services, so they are included under "Full-Service Providers".

Full-Service Providers sell bundled electricity services (e.g., both energy and delivery) to end users. Full-Service Providers may purchase electricity from others (such as Independent Power Producers or other Full-Service Providers) prior to delivery. Direct sales from independent facility generators to end use consumers are reported under Full-Service Providers. Energy-Only Providers sell energy to end use customers; incumbent utility distribution firms provide Delivery-Only Services for these customers.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report." and Form EIA-861S, "Annual Electric Power Industry Report (Short Form)."

Table 2.2. Sales and Direct Use of Electricity to Ultimate Customers by Sector, by Provider, 2009 through 2019 (Megawatthours)

Year	Residential	Commercial	Industrial	Transportation	Total	Direct Use	Total End Use
Total Electric Industry							
2009	1,364,758,153	1,306,852,524	917,416,468	7,767,989	3,596,795,134	126,937,958	3,723,733,092
2010	1,445,708,403	1,330,199,364	971,221,189	7,712,412	3,754,841,368	131,910,249	3,886,751,617
2011	1,422,801,093	1,328,057,439	991,315,564	7,672,084	3,749,846,180	132,754,037	3,882,600,217
2012	1,374,514,708	1,327,101,196	985,713,854	7,320,028	3,694,649,786	137,656,510	3,832,306,296
2013	1,394,812,129	1,337,078,777	985,351,874	7,625,041	3,724,867,821	143,461,937	3,868,329,758
2014	1,407,208,311	1,352,158,263	997,576,138	7,757,555	3,764,700,267	138,573,884	3,903,274,151
2015	1,404,096,499	1,360,751,527	986,507,732	7,636,632	3,758,992,390	141,167,519	3,900,159,909
2016	1,411,058,153	1,367,191,386	976,715,181	7,496,910	3,762,461,630	139,844,397	3,902,306,027
2017	1,378,647,742	1,352,887,694	984,297,945	7,522,593	3,723,355,974	141,114,442	3,864,470,416
2018	1,469,093,059	1,381,754,845	1,000,672,553	7,664,804	3,859,185,261	144,113,808	4,003,299,069
2019	1,440,288,909	1,360,876,555	1,002,352,849	7,632,150	3,811,150,463	143,458,489	3,954,608,952
Full-Service Providers							
2009	1,345,314,362	1,143,473,246	811,314,045	2,464,259	3,302,565,912	N/A	3,302,565,912
2010	1,409,355,244	1,123,328,313	840,439,791	2,440,567	3,375,563,915	N/A	3,375,563,915
2011	1,368,453,770	1,090,292,969	822,404,124	1,730,820	3,282,881,683	N/A	3,282,881,683
2012	1,297,818,441	1,073,346,766	807,805,140	1,389,340	3,180,359,687	N/A	3,180,359,687
2013	1,291,368,071	1,074,915,884	797,769,849	1,603,318	3,165,657,122	N/A	3,165,657,122
2014	1,301,458,851	1,083,806,639	814,206,541	1,787,408	3,201,259,439	N/A	3,201,259,439
2015	1,307,918,081	1,089,268,864	805,111,979	1,749,450	3,204,048,374	N/A	3,204,048,374
2016	1,316,113,416	1,091,957,177	792,712,354	1,663,475	3,202,446,422	N/A	3,202,446,422
2017	1,285,787,376	1,078,679,288	797,505,332	1,656,960	3,163,628,956	N/A	3,163,628,956
2018	1,368,032,531	1,096,773,561	808,613,290	1,688,442	3,275,107,824	N/A	3,275,107,824
2019	1,335,937,347	1,078,046,650	811,871,096	1,864,134	3,227,719,227	N/A	3,227,719,227
Energy-Only Providers							
2009	19,443,791	163,379,278	106,102,423	5,303,730	294,229,222	N/A	294,229,222
2010	36,353,159	206,871,051	130,781,398	5,271,845	379,277,453	N/A	379,277,453
2011	54,347,323	237,764,470	168,911,440	5,941,264	466,964,497	N/A	466,964,497
2012	76,696,267	253,754,430	177,908,714	5,930,688	514,290,099	N/A	514,290,099
2013	103,444,058	262,162,893	187,582,025	6,021,723	559,210,699	N/A	559,210,699
2014	105,749,460	268,351,624	183,369,597	5,970,147	563,440,828	N/A	563,440,828
2015	96,178,418	271,482,663	181,395,753	5,887,182	554,944,016	N/A	554,944,016
2016	94,944,737	275,234,209	184,002,827	5,833,435	560,015,208	N/A	560,015,208
2017	92,860,366	274,208,406	186,792,613	5,865,633	559,727,018	N/A	559,727,018
2018	101,060,528	284,981,284	192,059,263	5,976,362	584,077,437	N/A	584,077,437
2019	104,351,562	282,829,905	190,481,753	5,768,016	583,431,236	N/A	583,431,236

N/A = Not Available.

Direct Use represents commercial and industrial facility use of onsite net electricity generation; and electricity sales or transfers to adjacent or co-located facilities for which revenue information is not available.

Pursuant to applicable Texas statutes establishing competitive electricity markets within the Electric Reliability Council of Texas (ERCOT), all customers served by Retail Energy Providers must be provided bundled energy and delivery services, so they are included under "Full-Service Providers".

Full-Service Providers sell bundled electricity services (e.g., both energy and delivery) to end users. Full-Service Providers may purchase electricity from others (such as Independent Power Producers or other Full-Service Providers) prior to delivery. Direct sales from independent facility generators to end use consumers are reported under Full-Service Providers. Energy-Only Providers sell energy to end use customers; incumbent utility distribution firms provide Delivery-Only Services for these customers.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report.", Form EIA-861S, "Annual Electric Power Industry Report (Short Form)" and Form EIA-923, "Power Plant Operations Report"

Table 2.3. Revenue from Sales of Electricity to Ultimate Customers by Sector, by Provider, 2009 through 2019 (Million Dollars)

Year	Residential	Commercial	Industrial	Transportation	Total
Total Electric Industry					
2009	157,044	132,747	62,670	828	353,289
2010	166,778	135,554	65,772	814	368,918
2011	166,714	135,927	67,606	803	371,049
2012	163,280	133,898	65,761	747	363,687
2013	169,131	137,188	67,934	805	375,058
2014	176,178	145,253	70,855	810	393,096
2015	177,624	144,781	68,166	771	391,341
2016	177,077	142,643	66,068	722	386,509
2017	177,661	144,242	67,691	728	390,322
2018	189,033	147,425	69,218	744	406,420
2019	187,436	145,280	68,285	737	401,738
Full-Service Providers					
2009	153,741	112,254	53,284	226	319,506
2010	161,221	110,298	54,582	233	326,334
2011	158,788	108,318	54,285	162	321,552
2012	152,817	106,012	52,667	132	311,628
2013	155,203	108,460	54,309	167	318,138
2014	160,637	113,880	57,140	187	331,845
2015	162,857	113,225	54,787	170	331,038
2016	162,395	111,218	52,958	164	326,735
2017	162,762	112,576	54,412	171	329,921
2018	172,556	114,007	55,058	176	341,797
2019	169,867	112,036	54,782	190	336,876
Competitive Service Providers					
2009	3,302	20,493	9,386	602	33,783
2010	5,557	25,256	11,190	581	42,584
2011	7,926	27,609	13,321	641	49,497
2012	10,464	27,886	13,094	615	52,059
2013	13,928	28,729	13,625	638	56,919
2014	15,541	31,373	13,715	623	61,251
2015	14,767	31,557	13,379	601	60,303
2016	14,682	31,425	13,110	557	59,774
2017	14,899	31,666	13,279	557	60,402
2018	16,477	33,418	14,161	567	64,623
2019	17,569	33,244	13,502	547	64,863
Energy-Only Providers					
2009	1,889	14,045	7,369	460	23,763
2010	3,226	16,994	8,664	424	29,308
2011	4,578	18,086	10,392	463	33,519
2012	5,776	17,397	9,895	432	33,500
2013	7,755	17,876	10,330	451	36,412
2014	9,079	19,948	10,813	436	40,277
2015	8,428	19,657	10,298	407	38,791
2016	7,947	18,850	9,896	360	37,053
2017	7,666	18,368	9,829	363	36,227
2018	8,438	19,279	10,424	378	38,518
2019	8,718	18,436	9,738	360	37,253
Delivery-Only Providers					
2009	1,413	6,448	2,017	143	10,021
2010	2,330	8,262	2,526	157	13,276
2011	3,348	9,523	2,929	178	15,978
2012	4,687	10,489	3,199	183	18,559
2013	6,172	10,853	3,295	187	20,507
2014	6,462	11,425	2,901	187	20,975
2015	6,339	11,900	3,081	193	21,512
2016	6,735	12,575	3,213	197	22,720
2017	7,232	13,298	3,450	194	24,174
2018	8,039	14,139	3,737	190	26,105
2019	8,850	14,809	3,764	187	27,610

N/A = Not Available.

Pursuant to applicable Texas statutes establishing competitive electricity markets within the Electric Reliability Council of Texas (ERCOT), all customers served by Retail Energy Providers must be provided bundled energy and delivery services, so they are included under "Full-Service Providers".

Full-Service Providers sell bundled electricity services (e.g., both energy and delivery) to end users. Full-Service Providers may purchase electricity from others (such as Independent Power Producers or other Full-Service Providers) prior to delivery. Direct sales from independent facility generators to end use consumers are reported under Full-Service Providers. Energy-Only Providers sell energy to end use customers; incumbent utility distribution firms provide Delivery-Only Services for these customers. Data reported under Competitive Service Providers represent the sum of Energy-Only and Delivery-Only Services."

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report." Form EIA-861S, "Annual Electric Power Industry Report (Short Form)."

Table 2.4. Average Price of Electricity to Ultimate Customers

by End-Use Sectors 2009 through 2019 (Cents per kilowatthour)

Year	Residential	Commercial	Industrial	Transportation	Total
Total Electric Industry					
2009	11.51	10.16	6.83	10.66	9.82
2010	11.54	10.19	6.77	10.56	9.83
2011	11.72	10.24	6.82	10.46	9.90
2012	11.88	10.09	6.67	10.21	9.84
2013	12.13	10.26	6.89	10.55	10.07
2014	12.52	10.74	7.10	10.45	10.44
2015	12.65	10.64	6.91	10.09	10.41
2016	12.55	10.43	6.76	9.63	10.27
2017	12.89	10.66	6.88	9.68	10.48
2018	12.87	10.67	6.92	9.70	10.53
2019	13.01	10.68	6.81	9.66	10.54
Full-Service Providers					
2009	11.43	9.82	6.57	9.17	9.67
2010	11.44	9.82	6.49	9.55	9.67
2011	11.60	9.93	6.60	9.35	9.79
2012	11.77	9.88	6.52	9.50	9.80
2013	12.02	10.09	6.81	10.40	10.05
2014	12.34	10.51	7.02	10.49	10.37
2015	12.45	10.39	6.80	9.71	10.33
2016	12.34	10.19	6.68	9.87	10.20
2017	12.66	10.44	6.82	10.32	10.43
2018	12.61	10.39	6.81	10.44	10.44
2019	12.72	10.39	6.75	10.20	10.44
Competitive Service Providers					
2009	16.98	12.54	8.85	11.36	11.48
2010	15.29	12.21	8.56	11.03	11.23
2011	14.58	11.61	7.89	10.79	10.60
2012	13.64	10.99	7.36	10.38	10.12
2013	13.46	10.96	7.26	10.60	10.18
2014	14.70	11.69	7.48	10.44	10.87
2015	15.35	11.62	7.38	10.20	10.87
2016	15.46	11.42	7.12	9.56	10.67
2017	16.04	11.55	7.11	9.50	10.79
2018	16.30	11.73	7.37	9.49	11.06
2019	16.84	11.75	7.09	9.49	11.12
Energy-Only Providers					
2009	9.72	8.60	6.94	8.67	8.08
2010	8.88	8.21	6.62	8.05	7.73
2011	8.42	7.61	6.15	7.80	7.18
2012	7.53	6.86	5.56	7.29	6.51
2013	7.50	6.82	5.51	7.49	6.51
2014	8.59	7.43	5.90	7.31	7.15
2015	8.76	7.24	5.68	6.92	6.99
2016	8.37	6.85	5.38	6.17	6.62
2017	8.26	6.70	5.26	6.19	6.47
2018	8.35	6.77	5.43	6.32	6.59
2019	8.35	6.52	5.11	6.25	6.39
Delivery-Only Providers					
2009	7.27	3.95	1.90	2.69	3.41
2010	6.41	3.99	1.93	2.98	3.50
2011	6.16	4.01	1.73	2.99	3.42
2012	6.11	4.13	1.80	3.09	3.61
2013	5.97	4.14	1.76	3.11	3.67
2014	6.11	4.26	1.58	3.12	3.72
2015	6.59	4.38	1.70	3.28	3.88
2016	7.09	4.57	1.75	3.38	4.06
2017	7.79	4.85	1.85	3.31	4.32
2018	7.95	4.96	1.95	3.17	4.47
2019	8.48	5.24	1.98	3.24	4.73

N/A = Not Available.

Pursuant to applicable Texas statutes establishing competitive electricity markets within the Electric Reliability Council of Texas (ERCOT), all customers served by Retail Energy Providers must be provided bundled energy and delivery services, so they are included under "Full-Service Providers".

Full-Service Providers sell bundled electricity services (e.g., both energy and delivery) to end users. Full-Service Providers may purchase electricity from others (such as Independent Power Producers or other Full-Service Providers) prior to delivery. Direct sales from independent facility generators to end use consumers are reported under Full-Service Providers. Energy-Only Providers sell energy to end use customers; incumbent utility distribution firms provide Delivery-Only Services for these customers. Data reported under Competitive Service Providers represent the sum of Energy-Only and Delivery-Only Services."

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report." Form EIA-861S, "Annual Electric Power Industry Report (Short Form)."

**Table 2.5. Sales of Electricity to Ultimate Customers:
Total by End-Use Sector, 2009 - December 2019 (Thousand Megawatthours)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2009	1,364,758	1,306,853	917,416	7,768	3,596,795
2010	1,445,708	1,330,199	971,221	7,712	3,754,841
2011	1,422,801	1,328,057	991,316	7,672	3,749,846
2012	1,374,515	1,327,101	985,714	7,320	3,694,650
2013	1,394,812	1,337,079	985,352	7,625	3,724,868
2014	1,407,208	1,352,158	997,576	7,758	3,764,700
2015	1,404,096	1,360,752	986,508	7,637	3,758,992
2016	1,411,058	1,367,191	976,715	7,497	3,762,462
2017	1,378,648	1,352,888	984,298	7,523	3,723,356
2018	1,469,093	1,381,755	1,000,673	7,665	3,859,185
2019	1,440,289	1,360,877	1,002,353	7,632	3,811,150
Year 2017					
January	129,212	109,488	78,809	667	318,177
February	100,968	99,640	74,534	635	275,777
March	103,096	107,173	80,530	645	291,444
April	90,725	102,589	78,899	589	272,801
May	98,281	109,872	83,134	583	291,871
June	122,543	120,013	85,399	628	328,583
July	149,900	129,277	87,806	630	367,613
August	142,007	128,481	89,134	640	360,263
September	118,779	118,789	83,540	618	321,726
October	102,811	113,287	82,815	626	299,539
November	98,321	104,973	79,456	598	283,347
December	122,005	109,306	80,242	664	312,216
Year 2018					
January	148,917	114,925	79,890	745	344,478
February	113,751	102,685	75,661	634	292,732
March	107,218	108,108	81,053	620	296,999
April	95,454	103,331	79,083	599	278,468
May	103,848	113,175	85,638	587	303,248
June	129,913	122,011	85,536	623	338,083
July	153,566	131,522	89,301	634	375,023
August	153,496	134,848	92,106	680	381,131
September	128,910	122,033	85,679	640	337,263
October	107,049	116,133	85,301	631	309,114
November	103,790	104,983	81,118	616	290,507
December	123,180	107,998	80,306	655	312,140
Year 2019					
January	133,318	112,012	82,610	670	328,609
February	116,608	102,071	76,447	672	295,798
March	112,605	107,468	81,093	686	301,853
April	90,384	102,446	80,460	610	273,900
May	100,331	111,201	84,661	608	296,802
June	120,116	115,745	84,992	608	321,462
July	153,749	130,951	90,752	642	376,095
August	150,083	130,776	91,062	653	372,574
September	131,567	122,059	86,160	677	340,463
October	107,997	115,305	84,396	543	308,241
November	102,453	102,840	79,625	614	285,532
December	121,078	108,001	80,095	648	309,823

See Technical notes for additional information on the Commercial, Industrial, and Transportation sectors. NA = Not available. See Glossary for definitions. Geographic coverage is the 50 States and the District of Columbia. Values include energy service provider (power marketer) data.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-826. Utilities and energy service providers may classify commercial and industrial customers based on either NAICS codes or demands or usage falling within specified limits by rate schedule. Changes from year to year in consumer counts, sales and revenues, particularly involving the commercial and industrial consumer sectors, may result from respondent implementation of changes in the definitions of consumers, and reclassifications. Sales and net generation may not correspond exactly for a particular month for a variety of reasons (i.e., sales data may include purchases of electricity from nonutilities or imported electricity). Net generation is for the calendar month while sales and associated revenue accumulate from bills collected for periods of time (28 to 35 days) that vary dependent upon customer class and consumption occurring in and outside the calendar month.

Sources: U.S. Energy Information Administration, Form EIA-861M (formerly EIA-826), Monthly Electric Industry Power Report. Form EIA-826, Monthly Electric Sales and Revenue Report with State Distributions Report; Form EIA-861, Annual Electric Power Industry Report; and Form EIA-861S, Annual Electric Power Industry Report (Short Form).

**Table 2.6. Revenue from Sales of Electricity to Ultimate Customers:
Total by End-Use Sector, 2009 - December 2019 (Million Dollars)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2009	157,044	132,747	62,670	828	353,289
2010	166,778	135,554	65,772	814	368,918
2011	166,714	135,927	67,606	803	371,049
2012	163,280	133,898	65,761	747	363,687
2013	169,131	137,188	67,934	805	375,058
2014	176,178	145,253	70,855	810	393,096
2015	177,624	144,781	68,166	771	391,341
2016	177,077	142,643	66,068	722	386,509
2017	177,661	144,242	67,691	728	390,322
2018	189,033	147,425	69,218	744	406,420
2019	187,436	145,280	68,285	737	401,738
Year 2017					
January	15,781	11,183	5,190	63	32,216
February	12,911	10,442	4,941	60	28,354
March	13,289	11,208	5,407	61	29,965
April	11,536	10,669	5,209	56	27,470
May	12,843	11,638	5,639	56	30,176
June	16,171	13,209	6,141	64	35,585
July	19,606	14,184	6,416	64	40,269
August	18,679	14,141	6,435	64	39,320
September	15,772	13,104	5,992	62	34,930
October	13,164	12,208	5,725	60	31,157
November	12,721	11,016	5,345	57	29,139
December	15,189	11,239	5,249	62	31,739
Year 2018					
January	18,193	12,053	5,543	70	35,859
February	14,364	10,936	5,128	62	30,490
March	13,905	11,365	5,373	58	30,701
April	12,290	10,806	5,194	57	28,347
May	13,625	11,890	5,819	55	31,388
June	16,922	13,223	6,136	64	36,344
July	20,156	14,466	6,540	64	41,226
August	20,351	14,874	6,673	65	41,963
September	16,775	13,085	6,038	64	35,962
October	13,751	12,506	5,864	62	32,182
November	13,389	11,069	5,557	60	30,074
December	15,311	11,155	5,353	64	31,883
Year 2019					
January	16,620	11,541	5,433	66	33,660
February	14,831	10,761	5,116	67	30,775
March	14,457	11,238	5,454	63	31,212
April	11,976	10,777	5,239	58	28,050
May	13,356	11,725	5,667	58	30,805
June	16,005	12,618	5,843	61	34,526
July	20,382	14,433	6,476	63	41,354
August	19,955	14,407	6,739	63	41,164
September	17,317	13,379	6,085	66	36,847
October	13,837	12,380	5,770	53	32,039
November	13,346	10,874	5,350	58	29,629
December	15,354	11,146	5,112	61	31,674

See Technical notes for additional information on the Commercial, Industrial, and Transportation sectors. NA = Not available. See Glossary for definitions. Geographic coverage is the 50 States and the District of Columbia. Values include energy service provider (power marketer) data.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-826. Utilities and energy service providers may classify commercial and industrial customers based on either NAICS codes or demands or usage falling within specified limits by rate schedule. Changes from year to year in consumer counts, sales and revenues, particularly involving the commercial and industrial consumer sectors, may result from respondent implementation of changes in the definitions of consumers, and reclassifications. Sales and net generation may not correspond exactly for a particular month for a variety of reasons (i.e., sales data may include purchases of electricity from nonutilities or imported electricity). Net generation is for the calendar month while sales and associated revenue accumulate from bills collected for periods of time (28 to 35 days) that vary dependent upon customer class and consumption occurring in and outside the calendar month.

Sources: U.S. Energy Information Administration, Form EIA-861M (formerly EIA-826), Monthly Electric Industry Power Report. Form EIA-826, Monthly Electric Sales and Revenue Report with State Distributions Report; Form EIA-861, Annual Electric Power Industry Report; and Form EIA-861S, Annual Electric Power Industry Report (Short Form).

**Table 2.7. Average Price of Electricity to Ultimate Customers:
Total by End-Use Sector, 2009 - December 2019 (Cents per Kilowatthour)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2009	11.51	10.16	6.83	10.66	9.82
2010	11.54	10.19	6.77	10.56	9.83
2011	11.72	10.24	6.82	10.46	9.90
2012	11.88	10.09	6.67	10.21	9.84
2013	12.13	10.26	6.89	10.55	10.07
2014	12.52	10.74	7.10	10.45	10.44
2015	12.65	10.64	6.91	10.09	10.41
2016	12.55	10.43	6.76	9.63	10.27
2017	12.89	10.66	6.88	9.68	10.48
2018	12.87	10.67	6.92	9.70	10.53
2019	13.01	10.68	6.81	9.66	10.54
Year 2017					
January	12.21	10.21	6.59	9.39	10.13
February	12.79	10.48	6.63	9.50	10.28
March	12.89	10.46	6.71	9.49	10.28
April	12.72	10.40	6.60	9.46	10.07
May	13.07	10.59	6.78	9.61	10.34
June	13.20	11.01	7.19	10.18	10.83
July	13.08	10.97	7.31	10.12	10.95
August	13.15	11.01	7.22	10.06	10.91
September	13.28	11.03	7.17	9.99	10.86
October	12.80	10.78	6.91	9.57	10.40
November	12.94	10.49	6.73	9.50	10.28
December	12.45	10.28	6.54	9.35	10.17
Year 2018					
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
Year 2019					
January	12.47	10.30	6.58	9.83	10.24
February	12.72	10.54	6.69	10.02	10.40
March	12.84	10.46	6.73	9.25	10.34
April	13.25	10.52	6.51	9.45	10.24
May	13.31	10.54	6.69	9.46	10.38
June	13.32	10.90	6.87	10.01	10.74
July	13.26	11.02	7.14	9.82	11.00
August	13.30	11.02	7.40	9.65	11.05
September	13.16	10.96	7.06	9.78	10.82
October	12.81	10.74	6.84	9.72	10.39
November	13.03	10.57	6.72	9.52	10.38
December	12.68	10.32	6.38	9.46	10.22

See Technical notes for additional information on the Commercial, Industrial, and Transportation sectors. NA = Not available. See Glossary for definitions.

Geographic coverage is the 50 States and the District of Columbia. Values include energy service provider (power marketer) data.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-826. Utilities and energy service providers may classify commercial and industrial customers based on either NAICS codes or demands or usage falling within specified limits by rate schedule. Changes from year to year in consumer counts, sales and revenues, particularly involving the commercial and industrial consumer sectors, may result from respondent implementation of changes in the definitions of consumers, and reclassifications. Sales and net generation may not correspond exactly for a particular month for a variety of reasons (i.e., sales data may include purchases of electricity from nonutilities or imported electricity). Net generation is for the calendar month while sales and associated revenue accumulate from bills collected for periods of time (28 to 35 days) that vary dependent upon customer class and consumption occurring in and outside the calendar month.

Sources: U.S. Energy Information Administration, Form EIA-861M (formerly EIA-826), Monthly Electric Industry Power Report.

Form EIA-826, Monthly Electric Sales and Revenue Report with State Distributions Report;

Form EIA-861, Annual Electric Power Industry Report; and Form EIA-861S, Annual Electric Power Industry Report (Short Form).

Table 2.8. Sales of Electricity to Ultimate Customers by End-Use Sector, by State, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	46,173	48,099	51,503	52,924	16,234	17,054	547	557	114,458	118,634
Connecticut	12,494	13,061	12,158	12,381	3,072	3,210	177	181	27,900	28,834
Maine	4,794	4,872	4,148	4,447	2,790	3,036	0	0	11,732	12,355
Massachusetts	19,315	20,285	25,337	25,952	6,342	6,699	343	349	51,337	53,285
New Hampshire	4,507	4,641	4,281	4,443	1,924	1,963	0	0	10,712	11,046
Rhode Island	2,983	3,124	3,644	3,698	695	735	27	27	7,350	7,583
Vermont	2,082	2,116	1,934	2,004	1,412	1,411	0	0	5,428	5,531
Middle Atlantic	133,150	137,580	153,246	158,774	74,961	74,601	3,740	3,968	365,097	374,923
New Jersey	28,613	29,531	38,013	38,807	6,990	7,369	301	310	73,917	76,017
New York	50,141	52,153	75,091	76,745	17,548	18,077	2,820	2,954	145,600	149,930
Pennsylvania	54,396	55,896	40,143	43,222	50,423	49,155	619	703	145,580	148,977
East North Central	186,187	193,825	180,212	185,278	192,318	195,875	636	615	559,352	575,593
Illinois	45,220	47,226	49,279	50,763	43,250	44,115	570	551	138,319	142,655
Indiana	33,249	34,575	23,518	24,305	45,317	45,293	21	21	102,104	104,194
Michigan	33,496	35,131	37,861	38,925	29,886	30,806	6	7	101,249	104,869
Ohio	52,226	54,452	46,009	47,192	50,249	51,236	38	36	148,522	152,915
Wisconsin	21,995	22,441	23,546	24,093	23,615	24,425	1	0	69,158	70,960
West North Central	106,595	109,892	102,643	104,457	93,550	94,080	49	49	302,838	308,478
Iowa	14,495	14,840	12,310	12,418	24,239	23,953	0	0	51,043	51,211
Kansas	13,631	14,187	15,916	16,169	11,613	11,681	0	0	41,160	42,037
Minnesota	22,288	22,837	22,904	23,399	21,748	22,447	25	26	66,966	68,708
Missouri	35,691	37,463	30,133	31,179	13,010	13,390	24	24	78,858	82,056
Nebraska	10,308	10,412	9,457	9,553	10,619	10,974	0	0	30,383	30,939
North Dakota	5,125	5,133	7,035	6,836	9,399	8,700	0	0	21,559	20,670
South Dakota	5,057	5,018	4,888	4,903	2,924	2,935	0	0	12,869	12,857
South Atlantic	370,430	374,135	318,135	317,277	141,243	142,648	1,383	1,331	831,191	835,391
Delaware	5,004	5,070	4,421	4,342	2,044	2,361	0	0	11,469	11,773
District of Columbia	2,547	2,592	7,952	8,236	180	193	350	337	11,028	11,358
Florida	127,182	125,528	96,567	96,265	16,514	16,689	85	83	240,348	238,565
Georgia	59,331	59,689	47,412	47,312	32,393	32,696	164	170	139,301	139,866
Maryland	27,534	28,138	28,893	29,548	3,718	3,870	575	530	60,721	62,086
North Carolina	59,853	61,622	49,173	49,298	27,391	27,354	19	13	136,436	138,287
South Carolina	31,160	31,852	22,168	22,233	26,877	27,556	0	0	80,206	81,641
Virginia	46,666	47,963	53,981	52,268	17,598	17,737	190	199	118,435	118,166
West Virginia	11,153	11,679	7,567	7,774	14,527	14,193	0	0	33,247	33,647
East South Central	120,280	124,486	93,078	94,924	98,863	100,783	0	0	312,221	320,192
Alabama	32,416	33,080	23,076	23,483	32,603	33,717	0	0	88,095	90,280
Kentucky	26,573	27,713	19,612	19,980	29,161	28,917	0	0	75,345	76,611
Mississippi	18,718	19,311	14,239	14,530	15,994	16,549	0	0	48,951	50,390
Tennessee	42,573	44,382	36,151	36,930	21,105	21,599	0	0	99,829	102,911
West South Central	229,006	232,709	198,321	201,723	207,836	198,150	199	201	635,361	632,783
Arkansas	18,732	19,259	11,949	12,278	17,412	18,065	0	0	48,093	49,603
Louisiana	30,986	32,066	24,284	24,691	37,846	37,417	12	13	93,129	94,186
Oklahoma	23,806	24,117	20,086	21,229	20,904	19,229	0	0	64,796	64,575
Texas	155,481	157,268	142,002	143,525	131,674	123,439	187	187	429,343	424,419
Mountain	100,458	100,312	98,070	99,065	84,813	83,788	185	161	283,525	283,325
Arizona	34,720	34,660	29,415	29,684	13,783	13,994	11	8	77,929	78,346
Colorado	19,405	19,287	21,111	21,023	15,891	16,047	114	93	56,521	56,450
Idaho	8,697	8,428	6,441	6,437	8,847	8,889	0	0	23,985	23,754
Montana	5,308	5,198	4,956	4,921	5,057	4,720	0	0	15,321	14,839
Nevada	12,868	13,450	11,681	12,124	12,426	12,198	8	8	36,982	37,780
New Mexico	6,872	6,826	9,029	9,035	8,980	8,187	0	0	24,880	24,049
Utah	9,740	9,715	11,860	12,084	9,491	9,393	52	51	31,143	31,242
Wyoming	2,849	2,748	3,575	3,757	10,339	10,359	0	0	16,763	16,865
Pacific Contiguous	143,323	143,370	159,972	161,653	87,648	88,750	893	783	391,836	394,556
California	87,524	89,100	114,279	115,786	47,808	49,588	768	750	250,379	255,224
Oregon	19,286	18,931	16,423	16,470	14,668	13,899	27	26	50,404	49,326
Washington	36,512	35,339	29,270	29,396	25,172	25,263	99	7	91,053	90,006
Pacific Noncontiguous	4,688	4,686	5,697	5,679	4,887	4,945	0	0	15,272	15,310
Alaska	1,928	1,975	2,639	2,646	1,252	1,352	0	0	5,819	5,972
Hawaii	2,760	2,711	3,058	3,033	3,635	3,593	0	0	9,453	9,337
U.S. Total	1,440,289	1,469,093	1,360,877	1,381,755	1,002,353	1,000,673	7,632	7,665	3,811,150	3,859,185

See Technical notes for additional information on the Commercial, Industrial, and Transportation sectors.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Notes: - See Glossary for definitions. - Values are final.

See Technical Notes for a discussion of the sample design for the Form EIA-826.

Utilities and energy service providers may classify commercial and industrial customers based on either NAICS codes or demands or usage falling within specified limits by rate schedule.

Changes from year to year in consumer counts, sales and revenues, particularly involving the commercial and industrial consumer sectors, may result from respondent implementation of changes in the definitions of consumers, and reclassifications.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, Annual Electric Power Industry Report.

Table 2.9. Revenue from Sales of Electricity to Ultimate Customers by End-Use Sector, by State, 2019 and 2018 (Million Dollars)

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	9,744	9,910	8,412	8,709	2,122	2,249	50	50	20,328	20,918
Connecticut	2,733	2,769	2,036	2,075	413	442	24	23	5,206	5,309
Maine	858	821	532	556	257	283	0	0	1,647	1,660
Massachusetts	4,233	4,383	4,255	4,457	936	998	21	22	9,445	9,860
New Hampshire	904	914	682	703	252	263	0	0	1,838	1,880
Rhode Island	648	642	597	613	108	113	5	5	1,359	1,373
Vermont	369	381	309	305	156	150	0	0	834	837
Middle Atlantic	21,039	21,974	18,705	19,729	4,925	5,191	418	441	45,088	47,336
New Jersey	4,535	4,550	4,651	4,737	710	742	27	28	9,922	10,057
New York	8,995	9,659	10,557	11,128	985	1,088	346	359	20,884	22,233
Pennsylvania	7,509	7,765	3,498	3,864	3,230	3,362	45	55	14,282	15,045
East North Central	24,929	25,681	18,378	18,887	13,290	13,912	45	43	56,642	58,523
Illinois	5,891	6,029	4,476	4,631	2,822	2,999	39	37	13,228	13,696
Indiana	4,183	4,240	2,594	2,576	3,335	3,343	2	2	10,114	10,161
Michigan	5,273	5,427	4,313	4,339	2,114	2,187	1	1	11,701	11,954
Ohio	6,464	6,840	4,470	4,769	3,292	3,592	3	3	14,229	15,203
Wisconsin	3,118	3,146	2,525	2,571	1,727	1,791	0	0	7,370	7,508
West North Central	12,643	13,184	9,911	10,223	6,802	6,845	4	4	29,360	30,256
Iowa	1,806	1,817	1,230	1,203	1,600	1,546	0	0	4,636	4,566
Kansas	1,733	1,894	1,638	1,723	853	887	0	0	4,224	4,505
Minnesota	2,907	3,001	2,369	2,429	1,637	1,689	2	2	6,915	7,122
Missouri	3,976	4,249	2,734	2,931	925	966	2	2	7,636	8,148
Nebraska	1,110	1,114	837	843	813	834	0	0	2,759	2,792
North Dakota	528	526	634	622	747	694	0	0	1,908	1,842
South Dakota	584	582	469	472	228	228	0	0	1,281	1,282
South Atlantic	44,201	43,771	29,764	29,507	9,175	9,299	109	105	83,250	82,683
Delaware	628	635	421	419	157	188	0	0	1,207	1,242
District of Columbia	331	333	975	986	15	16	33	32	1,354	1,367
Florida	14,883	14,485	8,950	8,845	1,263	1,276	7	7	25,103	24,614
Georgia	6,979	6,847	4,752	4,633	1,999	1,963	10	9	13,740	13,453
Maryland	3,611	3,742	2,880	3,083	290	318	42	39	6,823	7,182
North Carolina	6,834	6,835	4,331	4,229	1,727	1,732	2	1	12,893	12,797
South Carolina	4,048	3,963	2,345	2,248	1,643	1,681	0	0	8,036	7,891
Virginia	5,632	5,624	4,417	4,347	1,206	1,217	16	16	11,271	11,204
West Virginia	1,255	1,306	693	719	875	908	0	0	2,823	2,933
East South Central	13,668	13,862	9,997	9,983	5,699	5,891	0	0	29,364	29,736
Alabama	4,061	4,028	2,658	2,639	1,940	2,028	0	0	8,659	8,694
Kentucky	2,869	2,936	1,991	1,946	1,624	1,643	0	0	6,484	6,525
Mississippi	2,109	2,147	1,498	1,516	936	993	0	0	4,543	4,655
Tennessee	4,629	4,752	3,851	3,882	1,198	1,228	0	0	9,678	9,861
West South Central	25,587	25,056	16,257	16,564	11,277	10,703	13	16	53,134	52,340
Arkansas	1,835	1,889	1,050	951	1,068	1,019	0	0	3,952	3,859
Louisiana	3,035	3,074	2,164	2,185	1,979	2,003	1	1	7,179	7,263
Oklahoma	2,430	2,484	1,603	1,713	1,059	1,027	0	0	5,092	5,224
Texas	18,287	17,610	11,440	11,715	7,171	6,654	12	15	36,910	35,994
Mountain	11,866	11,974	9,373	9,470	5,372	5,407	17	15	26,629	26,866
Arizona	4,317	4,425	3,014	3,158	865	916	1	1	8,197	8,501
Colorado	2,363	2,343	2,203	2,106	1,175	1,199	10	8	5,750	5,655
Idaho	860	855	494	511	538	575	0	0	1,892	1,941
Montana	591	570	516	497	276	245	0	0	1,382	1,312
Nevada	1,545	1,593	939	939	763	744	1	1	3,247	3,277
New Mexico	860	866	884	905	492	478	0	0	2,236	2,250
Utah	1,013	1,011	979	994	567	554	5	5	2,565	2,565
Wyoming	318	310	345	360	695	695	0	0	1,358	1,365
Pacific Contiguous	22,432	22,308	23,067	22,954	8,474	8,552	80	68	54,053	53,882
California	16,764	16,782	19,052	18,924	6,406	6,546	68	65	42,290	42,318
Oregon	2,124	2,079	1,453	1,468	859	814	2	2	4,438	4,364
Washington	3,545	3,446	2,561	2,562	1,209	1,191	9	1	7,325	7,200
Pacific Noncontiguous	1,327	1,313	1,416	1,398	1,148	1,169	0	0	3,891	3,881
Alaska	442	433	522	492	212	231	0	0	1,176	1,156
Hawaii	885	880	894	907	936	938	0	0	2,715	2,725
U.S. Total	187,436	189,033	145,280	147,425	68,285	69,218	737	744	401,738	406,420

See Technical notes for additional information on the Commercial, Industrial, and Transportation sectors.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Notes: - See Glossary for definitions. - Values are final.

See Technical Notes for a discussion of the sample design for the Form EIA-826.

Utilities and energy service providers may classify commercial and industrial customers based on either NAICS codes or demands or usage falling within specified limits by rate schedule.

Changes from year to year in consumer counts, sales and revenues, particularly involving the commercial and industrial consumer sectors, may result from respondent implementation of changes in the definitions of consumers, and reclassifications.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, Annual Electric Power Industry Report.

Table 2.10. Average Price of Electricity to Ultimate Customers by End-Use Sector, by State, 2019 and 2018 (Cents per Kilowatthour)

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	21.10	20.60	16.33	16.46	13.07	13.19	9.20	9.00	17.76	17.63
Connecticut	21.87	21.20	16.75	16.76	13.44	13.77	13.69	12.84	18.66	18.41
Maine	17.89	16.84	12.83	12.51	9.22	9.32	--	--	14.04	13.44
Massachusetts	21.92	21.61	16.80	17.17	14.76	14.89	6.15	6.38	18.40	18.50
New Hampshire	20.05	19.69	15.93	15.81	13.09	13.42	--	--	17.15	17.01
Rhode Island	21.73	20.55	16.38	16.58	15.59	15.39	18.49	17.00	18.49	18.10
Vermont	17.71	18.02	15.98	15.24	11.05	10.66	--	--	15.36	15.13
Middle Atlantic	15.80	15.97	12.21	12.43	6.57	6.96	11.17	11.13	12.35	12.63
New Jersey	15.85	15.41	12.23	12.21	10.16	10.07	8.80	9.07	13.42	13.23
New York	17.94	18.52	14.06	14.50	5.61	6.02	12.28	12.14	14.34	14.83
Pennsylvania	13.80	13.89	8.71	8.94	6.41	6.84	7.26	7.78	9.81	10.10
East North Central	13.39	13.25	10.20	10.19	6.91	7.10	7.08	6.96	10.13	10.17
Illinois	13.03	12.77	9.08	9.12	6.52	6.80	6.91	6.75	9.56	9.60
Indiana	12.58	12.26	11.03	10.60	7.36	7.38	10.76	10.44	9.91	9.75
Michigan	15.74	15.45	11.39	11.15	7.07	7.10	10.56	10.76	11.56	11.40
Ohio	12.38	12.56	9.72	10.11	6.55	7.01	6.83	7.33	9.58	9.94
Wisconsin	14.18	14.02	10.72	10.67	7.31	7.33	13.85	13.85	10.66	10.58
West North Central	11.86	12.00	9.66	9.79	7.27	7.28	8.72	9.07	9.69	9.81
Iowa	12.46	12.24	9.99	9.68	6.60	6.45	--	--	9.08	8.92
Kansas	12.71	13.35	10.29	10.66	7.35	7.60	--	--	10.26	10.72
Minnesota	13.04	13.14	10.34	10.38	7.53	7.52	9.49	9.58	10.33	10.37
Missouri	11.14	11.34	9.07	9.40	7.11	7.22	7.89	8.52	9.68	9.93
Nebraska	10.77	10.70	8.85	8.83	7.65	7.60	--	--	9.08	9.02
North Dakota	10.30	10.25	9.01	9.10	7.94	7.98	--	--	8.85	8.91
South Dakota	11.55	11.59	9.59	9.62	7.81	7.77	--	--	9.96	9.97
South Atlantic	11.93	11.70	9.36	9.30	6.50	6.52	7.92	7.91	10.02	9.90
Delaware	12.55	12.53	9.53	9.65	7.70	7.95	--	--	10.52	10.55
District of Columbia	12.98	12.84	12.26	11.97	8.22	8.30	9.50	9.54	12.27	12.03
Florida	11.70	11.54	9.27	9.19	7.65	7.65	8.32	8.26	10.44	10.32
Georgia	11.76	11.47	10.02	9.79	6.17	6.00	5.85	5.52	9.86	9.62
Maryland	13.12	13.30	9.97	10.43	7.80	8.23	7.37	7.44	11.24	11.57
North Carolina	11.42	11.09	8.81	8.58	6.30	6.33	8.20	8.02	9.45	9.25
South Carolina	12.99	12.44	10.58	10.11	6.11	6.10	--	--	10.02	9.67
Virginia	12.07	11.73	8.18	8.32	6.85	6.86	8.27	8.28	9.52	9.48
West Virginia	11.25	11.18	9.16	9.24	6.02	6.40	--	--	8.49	8.72
East South Central	11.36	11.14	10.74	10.52	5.76	5.85	--	--	9.40	9.29
Alabama	12.53	12.18	11.52	11.24	5.95	6.01	--	--	9.83	9.63
Kentucky	10.80	10.60	10.15	9.74	5.57	5.68	--	--	8.61	8.52
Mississippi	11.27	11.12	10.52	10.43	5.85	6.00	--	--	9.28	9.24
Tennessee	10.87	10.71	10.65	10.51	5.68	5.68	--	--	9.69	9.58
West South Central	11.17	10.77	8.20	8.21	5.43	5.40	6.61	8.16	8.36	8.27
Arkansas	9.80	9.81	8.78	7.75	6.13	5.64	11.73	11.35	8.22	7.78
Louisiana	9.80	9.59	8.91	8.85	5.23	5.35	9.08	9.21	7.71	7.71
Oklahoma	10.21	10.30	7.98	8.07	5.07	5.34	--	--	7.86	8.09
Texas	11.76	11.20	8.06	8.16	5.45	5.39	6.44	8.08	8.60	8.48
Mountain	11.81	11.94	9.56	9.56	6.33	6.45	9.29	9.53	9.39	9.48
Arizona	12.43	12.77	10.25	10.64	6.28	6.55	9.68	10.02	10.52	10.85
Colorado	12.18	12.15	10.43	10.02	7.40	7.47	8.70	9.00	10.17	10.02
Idaho	9.89	10.15	7.67	7.93	6.08	6.47	--	--	7.89	8.17
Montana	11.13	10.96	10.41	10.11	5.45	5.19	--	--	9.02	8.84
Nevada	12.00	11.85	8.04	7.74	6.14	6.10	8.51	8.31	8.78	8.67
New Mexico	12.51	12.68	9.79	10.02	5.48	5.84	--	--	8.99	9.35
Utah	10.40	10.41	8.26	8.23	5.98	5.90	10.62	10.59	8.24	8.21
Wyoming	11.18	11.29	9.64	9.58	6.73	6.71	--	--	8.10	8.09
Pacific Contiguous	15.65	15.56	14.42	14.20	9.67	9.64	8.98	8.67	13.79	13.66
California	19.15	18.84	16.67	16.34	13.40	13.20	8.91	8.64	16.89	16.58
Oregon	11.01	10.98	8.85	8.91	5.86	5.86	9.14	9.16	8.81	8.85
Washington	9.71	9.75	8.75	8.72	4.80	4.71	9.45	9.38	8.04	8.00
Pacific Noncontiguous	28.30	28.03	24.86	24.62	23.50	23.64	--	--	25.48	25.35
Alaska	22.92	21.94	19.80	18.58	16.94	17.10	--	--	20.22	19.36
Hawaii	32.06	32.47	29.23	29.90	25.76	26.10	--	--	28.72	29.18
U.S. Total	13.01	12.87	10.68	10.67	6.81	6.92	9.66	9.70	10.54	10.53

See Technical notes for additional information on the Commercial, Industrial, and Transportation sectors.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Notes: - See Glossary for definitions. - Values are final.

See Technical Notes for a discussion of the sample design for the Form EIA-826.

Utilities and energy service providers may classify commercial and industrial customers based on either NAICS codes or demands or usage falling within specified limits by rate schedule.

Changes from year to year in consumer counts, sales and revenues, particularly involving the commercial and industrial consumer sectors, may result from respondent implementation of changes in the definitions of consumers, and reclassifications.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, Annual Electric Power Industry Report.

Table 2.11. Number of Ultimate Customers by Sector by State, 2018 and 2019

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	6,411,587	6,377,606	889,951	883,832	23,310	23,028	6	7	7,324,854	7,284,473
Connecticut	1,510,966	1,503,701	151,979	153,824	4,204	4,308	3	4	1,667,152	1,661,837
Maine	710,869	709,848	99,738	96,066	2,893	3,064	--	--	813,500	808,978
Massachusetts	2,802,099	2,784,243	410,995	408,972	11,020	10,503	2	2	3,224,116	3,203,720
New Hampshire	627,257	622,671	108,247	107,805	3,193	3,176	--	--	738,697	733,652
Rhode Island	444,216	442,005	60,672	60,128	1,758	1,773	1	1	506,647	503,907
Vermont	316,180	315,138	58,320	57,037	242	204	--	--	374,742	372,379
Middle Atlantic	16,251,104	16,149,378	2,361,895	2,345,015	33,176	30,504	21	20	18,646,196	18,524,917
New Jersey	3,596,834	3,568,044	523,796	521,429	11,781	11,877	7	6	4,132,418	4,101,356
New York	7,235,400	7,190,906	1,121,107	1,106,650	7,607	6,884	8	8	8,364,122	8,304,448
Pennsylvania	5,418,870	5,390,428	716,992	716,936	13,788	11,743	6	6	6,149,656	6,119,113
East North Central	20,287,076	20,183,560	2,515,638	2,498,950	55,588	53,956	10	9	22,858,312	22,736,475
Illinois	5,314,522	5,289,573	622,802	616,192	5,737	5,717	3	3	5,943,064	5,911,485
Indiana	2,887,031	2,863,358	358,791	354,730	18,805	17,763	1	1	3,264,628	3,235,852
Michigan	4,384,305	4,365,529	544,690	543,261	5,726	5,972	2	2	4,934,723	4,914,764
Ohio	4,980,931	4,964,855	632,794	630,210	19,798	18,715	2	2	5,633,525	5,613,782
Wisconsin	2,720,287	2,700,245	356,561	354,557	5,522	5,789	2	1	3,082,372	3,060,592
West North Central	9,570,282	9,497,228	1,465,450	1,455,145	126,985	124,102	3	3	11,162,740	11,076,478
Iowa	1,392,979	1,385,756	241,734	239,703	8,565	7,890	--	--	1,643,278	1,633,349
Kansas	1,274,955	1,266,044	235,236	234,091	24,230	24,185	--	--	1,534,421	1,524,320
Minnesota	2,446,111	2,420,325	299,995	295,855	8,998	9,066	1	1	2,755,105	2,725,247
Missouri	2,811,863	2,792,459	384,787	384,493	10,096	8,085	2	2	3,206,748	3,185,039
Nebraska	855,619	849,898	153,814	153,749	62,204	61,968	--	--	1,071,637	1,065,615
North Dakota	385,038	382,596	76,355	75,148	8,803	8,985	--	--	470,196	466,729
South Dakota	403,717	400,150	73,549	72,106	4,089	3,923	--	--	481,355	476,179
South Atlantic	28,325,448	27,947,855	3,835,185	3,788,481	85,778	83,599	13	13	32,246,424	31,819,948
Delaware	439,167	432,449	55,802	54,904	865	837	--	--	495,834	488,190
District of Columbia	282,277	274,613	26,471	26,336	1	1	3	3	308,752	300,953
Florida	9,565,846	9,423,022	1,240,902	1,229,559	23,579	21,327	2	2	10,830,329	10,673,910
Georgia	4,411,521	4,354,021	585,573	579,468	23,539	23,065	1	1	5,020,634	4,956,555
Maryland	2,352,535	2,332,517	256,165	254,163	8,935	8,801	5	5	2,617,640	2,595,486
North Carolina	4,620,856	4,550,420	705,587	691,673	9,871	10,025	1	1	5,336,315	5,252,119
South Carolina	2,330,903	2,290,200	385,285	376,842	3,703	4,324	--	--	2,719,891	2,671,366
Virginia	3,464,677	3,431,574	434,175	431,058	3,723	3,704	1	1	3,902,576	3,866,337
West Virginia	857,666	859,039	145,225	144,478	11,562	11,515	--	--	1,014,453	1,015,032
East South Central	8,448,897	8,382,954	1,414,750	1,404,952	24,787	26,090	--	--	9,888,434	9,813,996
Alabama	2,249,425	2,229,472	369,798	371,097	7,245	7,342	--	--	2,626,468	2,607,911
Kentucky	1,991,137	1,980,209	309,830	305,417	6,147	6,750	--	--	2,307,114	2,292,376
Mississippi	1,293,419	1,290,281	237,625	236,871	10,379	10,988	--	--	1,541,423	1,538,140
Tennessee	2,914,916	2,882,992	497,497	491,567	1,016	1,010	--	--	3,413,429	3,375,569
West South Central	16,636,131	16,387,177	2,316,766	2,363,259	306,569	200,568	6	6	19,259,472	18,951,010
Arkansas	1,396,870	1,388,358	198,861	196,482	34,864	36,596	2	2	1,630,597	1,621,438
Louisiana	2,095,466	2,085,055	295,153	292,752	19,373	19,558	1	1	2,409,993	2,397,366
Oklahoma	1,777,156	1,764,980	285,641	282,875	19,905	18,700	--	--	2,082,702	2,066,555
Texas	11,366,639	11,148,784	1,537,111	1,591,150	232,427	125,714	3	3	13,136,180	12,865,651
Mountain	9,994,348	9,825,511	1,431,391	1,414,958	96,422	95,524	5	5	11,522,166	11,335,998
Arizona	2,853,183	2,808,352	326,191	322,135	7,899	7,794	2	2	3,187,275	3,138,283
Colorado	2,370,164	2,326,976	380,609	376,104	14,386	15,985	1	1	2,765,160	2,719,066
Idaho	763,841	743,567	112,137	110,797	28,493	28,418	--	--	904,471	882,782
Montana	516,052	509,526	109,459	108,695	11,286	9,915	--	--	636,797	628,136
Nevada	1,204,996	1,183,660	167,628	164,982	3,265	3,446	1	1	1,375,890	1,352,089
New Mexico	895,086	889,841	144,960	143,874	9,456	9,360	--	--	1,049,502	1,043,075
Utah	1,116,145	1,091,162	132,082	130,053	10,343	9,666	1	1	1,258,571	1,230,882
Wyoming	274,881	272,427	58,325	58,318	11,294	10,940	--	--	344,500	341,685
Pacific Contiguous	18,597,101	18,418,260	2,348,236	2,337,183	199,658	200,749	19	20	21,145,014	20,956,212
California	13,707,126	13,591,152	1,718,601	1,714,875	147,660	148,644	12	12	15,573,399	15,454,683
Oregon	1,763,783	1,750,240	240,488	237,942	25,169	24,821	2	2	2,029,442	2,013,005
Washington	3,126,192	3,076,868	389,147	384,366	26,829	27,284	5	6	3,542,173	3,488,524
Pacific Noncontiguous	727,642	723,792	114,958	113,618	1,949	2,201	--	--	844,549	839,611
Alaska	289,290	287,526	55,080	53,957	1,126	1,387	--	--	345,496	342,870
Hawaii	438,352	436,266	59,878	59,661	823	814	--	--	499,053	496,741
U.S. Total	135,249,616	133,893,321	18,694,240	18,605,393	954,222	840,321	83	83	154,898,161	153,339,118

Table 2.12. Electric Power Industry - Electricity Purchases, 2009 through 2019 (Thousand Megawatthours)

Year	Electric Utilities	Energy-Only Providers	Independent Power Producers	Combined Heat and Power	U.S. Total
2010	2,353,086	3,319,211	23,976	73,861	5,770,134
2011	2,245,381	2,679,803	21,844	77,593	5,024,621
2012	2,148,346	2,740,043	17,726	78,818	4,984,933
2013	2,099,528	2,482,928	16,101	86,420	4,684,977
2014	2,145,378	2,559,875	17,000	79,975	4,802,227
2015	2,101,788	2,506,185	54,046	99,505	4,761,523
2016	2,089,540	2,438,204	8,520	187,307	4,723,571
2017	2,102,971	2,552,146	9,372	196,768	4,861,257
2018	2,187,615	2,713,174	8,730	259,354	5,168,874
2019	2,231,042	2,778,349	9,391	352,854	5,371,635

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report" and Form EIA-923, "Power Plant Operations Report"

Table 2.13. Electric Power Industry - Electricity Sales for Resale, 2009 through 2019 (Thousand Megawatthours)

Year	Electric Utilities	Energy-Only Providers	Independent Power Producers	Combined Heat and Power	U.S. Total
2009	1,495,636	2,240,399	1,295,857	33,139	5,065,031
2010	1,541,554	2,946,452	1,404,137	37,068	5,929,211
2011	1,529,434	2,206,981	1,372,306	34,400	5,143,121
2012	1,456,774	2,135,819	1,384,155	37,017	5,013,765
2013	1,472,124	2,036,460	1,298,528	35,396	4,842,508
2014	1,485,964	2,081,235	1,301,724	39,916	4,908,839
2015	1,393,396	2,033,705	1,331,181	39,113	4,797,395
2016	1,391,873	1,947,036	1,372,928	35,131	4,746,967
2017	1,396,838	2,066,455	1,389,083	37,571	4,889,947
2018	1,431,952	2,193,414	1,463,236	38,674	5,127,276
2019	1,402,200	2,259,028	1,466,561	44,641	5,172,430

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report" and Form EIA-923, "Power Plant Operations Report"

Table 2.14. Electric Power Industry - U.S. Electricity Imports from and Electricity Exports to Canada and Mexico, 2009-2019 (Megawatthours)

Year	Canada		Mexico		U.S. Total	
	Imports from	Exports to	Imports from	Exports to	Imports	Exports
2009	50,870,451	17,517,112	1,320,144	620,872	52,190,595	18,137,984
2010	43,763,091	18,481,678	1,320,095	624,502	45,083,186	19,106,180
2011	51,075,952	14,398,470	1,223,758	650,082	52,299,710	15,048,552
2012	57,971,110	11,392,267	1,285,959	603,382	59,257,069	11,995,649
2013	62,739,038	10,694,907	6,207,597	678,300	68,946,635	11,373,207
2014	59,369,660	12,860,889	7,140,624	437,364	66,510,284	13,298,253
2015	68,462,277	8,707,873	7,308,192	392,016	75,770,469	9,099,889
2016	65,173,818	2,682,381	7,542,445	3,531,636	72,716,263	6,214,017
2017	59,909,320	3,312,798	5,775,597	6,058,005	65,684,917	9,370,803
2018	51,494,627	7,290,070	6,765,975	6,514,422	58,260,602	13,804,492
2019	52,309,254	13,532,067	6,743,207	6,475,965	59,052,461	20,008,032

Notes: As of November 2017, the data for 2016 and going forward will be published using data from the Form EIA-111, "Quarterly Electricity Imports and Exports Report." During 2013-2015, EIA revised its approach to estimating imports from Mexico.

Sources: 2016-2019, U.S. Energy Information Administration, Form EIA-111, "Quarterly Electricity Imports and Exports Report"; 2006-2015 data, National Energy Board of Canada; FERC 714, Annual Electric Balancing Authority Area and Planning Report; California Energy Commission; and EIA estimates.

Chapter 3

Net Generation

Table 3.1.A. Net Generation by Energy Source: Total (All Sectors), 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities											Total Generation at Utility Scale Facilities	Small Scale Generation		Net Generation From Utility and Small Scale Facilities			
	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Nuclear	Hydroelectric Conventional	Solar	Renewable Sources Excluding Hydroelectric and Solar	Hydroelectric Pumped Storage	Other		Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total	Estimated Total Solar		
Annual Totals																		
2009	1,755,904	25,972	12,964	920,979	10,632	798,855	273,445	891	143,388	-4,627	11,928	3,950,331	N/A	N/A	N/A	N/A	N/A	
2010	1,847,290	23,337	13,724	987,697	11,313	806,968	260,203	1,212	165,961	-5,501	12,855	4,125,060	N/A	N/A	N/A	N/A	N/A	
2011	1,733,430	16,086	14,096	1,013,689	11,566	790,204	319,355	1,818	192,163	-6,421	14,154	4,100,141	N/A	N/A	N/A	N/A	N/A	
2012	1,514,043	13,403	9,787	1,225,894	11,898	769,331	276,240	4,327	214,006	-4,950	13,787	4,047,765	N/A	N/A	N/A	N/A	N/A	
2013	1,581,115	13,820	13,344	1,124,836	12,853	789,016	268,565	9,036	244,472	-4,681	13,588	4,065,964	N/A	N/A	N/A	N/A	N/A	
2014	1,581,710	18,276	11,955	1,126,609	12,022	797,166	259,367	17,691	261,522	-6,174	13,461	4,093,606	11,233	26,482	28,924	28,924	28,924	
2015	1,352,398	17,372	10,877	1,333,482	13,117	797,178	249,080	24,893	270,268	-5,091	14,028	4,077,601	14,139	35,805	39,032	39,032	39,032	
2016	1,239,149	13,008	11,197	1,378,307	12,807	805,694	267,812	36,054	305,579	-6,686	13,754	4,076,675	18,812	51,483	54,866	54,866	54,866	
2017	1,205,835	12,414	8,976	1,296,442	12,469	804,950	300,333	53,287	332,963	-6,495	13,096	4,034,271	23,990	74,008	77,277	77,277	77,277	
2018	1,149,487	16,245	8,981	1,469,133	13,463	807,084	292,524	63,825	350,467	-5,905	12,973	4,178,277	29,539	89,773	93,365	93,365	93,365	
2019	964,957	11,619	6,819	1,585,717	12,591	809,409	287,874	71,937	367,886	-5,261	13,334	4,126,882	34,957	103,676	106,894	106,894	106,894	
Year 2017																		
January	115,333	1,102	944	95,572	1,047	73,121	26,628	2,324	27,605	-435	1,092	344,332	1,246	3,480	3,570	3,570	3,570	
February	86,822	869	723	82,768	978	63,560	23,882	2,751	23,882	-568	992	291,050	1,384	4,000	4,135	4,135	4,135	
March	89,365	956	699	95,074	1,060	65,093	29,613	4,514	32,421	-521	1,061	319,336	1,972	6,190	6,487	6,487	6,487	
April	81,335	860	431	88,455	1,001	56,743	29,409	4,907	31,607	-439	1,050	295,361	2,195	6,791	7,102	7,102	7,102	
May	92,777	970	847	98,019	1,056	61,313	32,607	5,785	29,408	-423	1,089	323,447	2,423	7,806	8,208	8,208	8,208	
June	107,508	991	901	117,236	993	67,011	30,575	6,115	26,659	-568	1,099	358,522	2,487	8,137	8,602	8,602	8,602	
July	127,698	920	889	146,929	1,047	71,314	26,598	5,569	23,019	-759	1,207	404,432	2,555	7,812	8,124	8,124	8,124	
August	119,488	968	765	141,201	1,133	72,384	22,034	5,369	20,817	-638	1,217	384,739	2,480	7,507	7,848	7,848	7,848	
September	98,202	931	712	118,036	1,059	68,098	19,152	5,059	24,238	-606	1,034	335,915	2,225	6,935	7,285	7,285	7,285	
October	89,776	973	572	106,826	998	65,995	17,698	4,650	30,614	-463	1,031	318,670	1,990	6,325	6,640	6,640	6,640	
November	90,986	915	755	94,928	1,001	66,618	19,888	3,209	29,150	-478	1,079	308,052	1,561	4,639	4,770	4,770	4,770	
December	106,545	1,958	737	111,398	1,095	73,700	22,248	3,035	29,211	-656	1,145	350,416	1,472	4,384	4,577	4,577	4,577	
Year 2018																		
January	119,284	5,555	965	110,293	1,097	74,649	25,064	3,319	32,443	-547	1,109	373,230	1,619	4,810	4,938	4,938	4,938	
February	82,050	804	754	98,512	1,092	64,790	24,902	3,896	29,415	-315	994	306,894	1,766	5,472	5,663	5,663	5,663	
March	80,626	830	642	106,524	1,158	67,033	25,861	5,056	33,200	-490	1,108	321,547	2,434	7,233	7,490	7,490	7,490	
April	73,346	872	666	98,371	1,099	59,133	28,115	6,057	32,446	-377	1,028	300,756	2,740	8,482	8,796	8,796	8,796	
May	85,227	1,040	517	115,284	1,167	67,320	30,444	6,849	30,419	-390	1,070	338,948	3,011	9,430	9,860	9,860	9,860	
June	101,503	1,066	834	130,826	1,091	69,688	27,597	7,415	31,193	-433	1,104	371,886	3,059	9,957	10,474	10,474	10,474	
July	115,376	988	913	164,749	1,172	72,456	25,100	6,755	23,316	-644	1,111	411,290	3,146	9,521	9,901	9,901	9,901	
August	115,129	1,047	879	161,676	1,301	72,282	22,017	6,695	26,601	-747	1,146	408,028	3,017	9,303	9,712	9,712	9,712	
September	96,544	1,055	799	141,786	1,104	64,725	19,166	5,961	24,718	-603	1,004	356,258	2,674	8,205	8,635	8,635	8,635	
October	87,264	1,015	562	123,142	1,016	59,397	19,548	4,970	27,426	-492	1,084	324,932	2,392	7,087	7,361	7,361	7,361	
November	92,819	1,006	656	108,168	1,045	63,954	21,913	3,743	28,334	-343	1,075	322,369	1,905	5,480	5,648	5,648	5,648	
December	100,319	966	795	109,802	1,120	71,657	22,797	3,110	30,956	-522	1,139	342,139	1,775	4,792	4,885	4,885	4,885	
Year 2019																		
January	100,905	1,420	800	121,582	1,025	73,701	24,798	3,580	30,776	-323	1,194	359,457	1,903	5,373	5,483	5,483	5,483	
February	79,929	822	692	112,135	948	64,715	22,881	3,836	28,379	-389	1,003	314,951	2,059	5,763	5,895	5,895	5,895	
March	78,352	827	574	115,806	1,086	65,080	26,334	5,899	31,941	-409	1,080	326,568	2,914	8,553	8,813	8,813	8,813	
April	59,922	788	401	104,053	948	60,581	27,820	6,752	34,425	-103	1,015	296,602	3,245	9,672	9,997	9,997	9,997	
May	71,885	947	737	117,053	1,054	67,124	31,982	7,162	31,651	-368	1,117	330,343	3,549	10,375	10,711	10,711	10,711	
June	78,540	966	563	137,828	1,009	68,805	28,078	7,971	28,453	-385	1,101	352,928	3,604	11,136	11,575	11,575	11,575	
July	100,771	1,009	791	171,942	1,185	72,199	24,875	8,133	28,534	-622	1,157	409,973	3,760	11,493	11,893	11,893	11,893	
August	94,040	1,054	684	174,955	1,147	71,911	22,579	7,877	26,518	-579	1,211	401,397	3,611	11,075	11,488	11,488	11,488	
September	85,707	931	581	149,688	1,112	66,064	18,526	6,817	30,556	-671	1,142	360,452	3,205	9,728	10,022	10,022	10,022	
October	66,777	951	200	130,941	924	62,033	18,306	6,093	33,298	-373	1,100	320,250	2,833	8,628	8,926	8,926	8,926	
November	75,549	907	333	117,904	1,047	64,125	20,218	4,364	30,688	-509	1,082	315,708	2,228	6,450	6,592	6,592	6,592	
December	72,581	996	463	131,830	1,107	73,074	21,478	3,453	32,667	-529	1,133	338,253	2,047	5,430	5,500	5,500	5,500	

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report;

Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

**Table 3.1.B. Net Generation from Renewable Sources: Total (All Sectors), 2009 - 2019
(Thousand Megawatthours)**

Period	Generation at Utility Scale Facilities										Small Scale Generation	Generation From Utility and Small Scale Facilities	
	Wind	Solar Photovoltaic	Solar Thermal	Wood and Wood-Derived Fuels	Landfill Gas	Biogenic Municipal Solid Waste	Other Waste Biomass	Geothermal	Conventional Hydroelectric	Total Renewable Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals													
2009	73,886	157	735	36,050	7,924	8,058	2,461	15,009	273,445	417,724	N/A	N/A	N/A
2010	94,652	423	789	37,172	8,377	7,927	2,613	15,219	260,203	427,376	N/A	N/A	N/A
2011	120,177	1,012	806	37,449	9,044	7,354	2,824	15,316	319,355	513,336	N/A	N/A	N/A
2012	140,822	3,451	876	37,799	9,803	7,320	2,700	15,562	276,240	494,573	N/A	N/A	N/A
2013	167,840	8,121	915	40,028	10,658	7,186	2,986	15,775	268,565	522,073	N/A	N/A	N/A
2014	181,655	15,250	2,441	42,340	11,220	7,228	3,202	15,877	259,367	538,579	11,233	26,482	28,924
2015	190,719	21,666	3,227	41,929	11,291	7,211	3,201	15,918	249,080	544,241	14,139	35,805	39,032
2016	226,993	32,670	3,384	40,947	11,218	7,265	3,331	15,826	267,812	609,445	18,812	51,483	54,866
2017	254,303	50,018	3,269	41,124	11,543	6,951	3,115	15,927	300,333	686,583	23,990	74,008	77,277
2018	272,667	60,234	3,592	40,936	11,036	7,136	2,724	15,967	292,524	706,816	29,539	89,773	93,365
2019	294,906	68,719	3,218	38,543	10,468	6,093	2,402	15,473	287,874	727,697	34,957	103,676	106,894
Year 2017													
January	20,799	2,234	90	3,502	999	617	281	1,407	26,628	56,557	1,246	3,480	3,570
February	22,091	2,616	136	3,186	912	528	257	1,239	23,882	54,846	1,384	4,000	4,135
March	25,731	4,217	297	3,456	1,000	557	291	1,387	29,613	66,548	1,972	6,190	6,487
April	25,378	4,596	310	3,146	943	544	255	1,341	29,409	65,923	2,195	6,791	7,102
May	23,068	5,383	402	3,188	980	604	266	1,302	32,607	67,800	2,423	7,806	8,208
June	20,142	5,651	465	3,437	957	588	252	1,284	30,575	63,350	2,487	8,137	8,602
July	16,120	5,258	311	3,703	960	604	260	1,373	26,598	55,187	2,555	7,812	8,124
August	13,879	5,028	341	3,751	963	617	245	1,363	22,034	48,220	2,480	7,507	7,848
September	17,912	4,710	349	3,292	922	558	224	1,332	19,152	48,449	2,225	6,935	7,285
October	24,369	4,335	314	3,303	933	558	237	1,214	17,698	52,962	1,990	6,325	6,640
November	22,615	3,078	131	3,426	963	571	271	1,305	19,888	52,248	1,561	4,639	4,770
December	22,201	2,912	123	3,734	1,014	606	276	1,381	22,248	54,494	1,472	4,384	4,507
Year 2018													
January	25,599	3,191	128	3,686	964	588	265	1,341	25,064	60,826	1,619	4,810	4,938
February	23,189	3,705	191	3,235	906	559	251	1,274	24,902	58,213	1,766	5,472	5,663
March	26,464	4,799	258	3,547	972	597	253	1,367	25,861	64,117	2,434	7,233	7,490
April	26,431	5,743	314	3,102	920	566	239	1,188	28,115	66,618	2,740	8,482	8,796
May	23,953	6,419	430	3,352	930	573	228	1,383	30,444	67,712	3,011	9,430	9,860
June	24,703	6,898	517	3,471	889	629	202	1,300	27,597	66,206	3,059	9,957	10,474
July	16,447	6,374	380	3,749	909	638	202	1,370	25,100	55,170	3,146	9,521	9,901
August	19,846	6,286	409	3,630	919	630	208	1,367	22,017	55,313	3,017	9,303	9,712
September	18,520	5,531	430	3,281	836	562	192	1,328	19,166	49,844	2,674	8,205	8,635
October	21,194	4,695	275	3,216	918	594	231	1,273	19,548	51,944	2,392	7,087	7,361
November	22,016	3,575	168	3,264	920	584	220	1,331	21,913	53,990	1,905	5,480	5,648
December	24,306	3,018	92	3,404	951	616	233	1,446	22,797	56,863	1,775	4,792	4,885
Year 2019													
January	24,248	3,470	111	3,465	930	528	214	1,390	24,798	59,154	1,903	5,373	5,483
February	22,547	3,704	131	3,042	843	464	191	1,293	22,881	55,095	2,059	5,763	5,895
March	25,677	5,639	260	3,217	908	490	227	1,422	26,334	64,174	2,914	8,553	8,813
April	28,854	6,427	325	2,807	833	468	208	1,254	27,820	68,997	3,245	9,672	9,997
May	25,695	6,826	336	3,051	859	526	179	1,342	31,982	70,795	3,549	10,375	10,711
June	22,385	7,532	439	3,159	868	523	191	1,328	28,078	64,502	3,604	11,136	11,575
July	22,043	7,733	400	3,498	884	538	194	1,375	24,875	61,542	3,760	11,493	11,893
August	19,951	7,464	413	3,539	886	546	204	1,393	22,579	56,974	3,611	11,075	11,488
September	24,448	6,523	294	3,211	838	512	179	1,368	18,526	55,899	3,205	9,728	10,022
October	27,521	5,796	298	3,063	868	500	206	1,141	18,306	57,698	2,833	8,628	8,926
November	25,042	4,223	141	3,137	844	484	198	984	20,218	55,269	2,228	6,450	6,592
December	26,496	3,383	70	3,355	908	513	213	1,183	21,478	57,598	2,047	5,430	5,500

Wood and Wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Waste Biomass includes sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report; Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 3.2.A. Net Generation by Energy Source: Electric Utilities, 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities											Total
	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Nuclear	Hydroelectric Conventional	Solar	Renewable Sources Excluding Hydroelectric and Solar	Hydroelectric Pumped Storage	Other	
Annual Totals												
2009	1,322,092	18,035	7,182	349,166	96	417,275	247,198	28	14,589	-3,369	483	2,372,776
2010	1,378,028	17,258	8,807	392,616	52	424,843	236,104	101	17,826	-4,466	462	2,471,632
2011	1,301,107	11,688	9,428	414,843	29	415,298	291,413	216	21,717	-5,492	604	2,460,851
2012	1,146,480	9,892	5,664	504,958	0	394,823	252,936	639	27,378	-4,202	603	2,339,172
2013	1,188,452	9,446	9,522	501,427	798	406,114	243,040	943	31,474	-3,773	615	2,388,058
2014	1,173,073	10,696	9,147	501,414	112	419,871	238,185	1,218	33,278	-5,144	622	2,382,473
2015	998,385	10,386	8,278	617,817	199	416,680	229,640	1,494	35,992	-4,105	558	2,315,323
2016	922,399	9,069	8,881	654,780	154	424,400	247,787	1,995	40,666	-5,629	421	2,304,923
2017	893,639	8,567	6,711	623,834	149	424,485	275,677	3,348	42,763	-5,448	553	2,274,279
2018	863,505	10,108	6,817	720,206	151	424,251	267,336	4,916	44,184	-4,785	561	2,337,250
2019	722,885	8,410	5,112	784,929	154	430,672	262,364	6,785	47,427	-4,261	551	2,265,028
Year 2017												
January	85,985	796	743	45,737	13	38,425	24,538	158	3,381	-346	43	199,474
February	64,844	627	540	39,552	17	33,911	21,937	194	3,796	-418	37	165,037
March	65,992	752	535	46,425	16	34,693	27,285	279	4,428	-455	42	179,993
April	58,913	641	260	43,439	18	30,217	26,825	307	4,178	-368	45	164,476
May	69,099	708	654	48,492	5	31,728	29,918	347	3,665	-350	42	184,308
June	81,297	707	698	56,422	10	35,022	28,240	344	3,407	-474	45	205,719
July	96,782	651	673	71,139	19	37,874	24,415	322	2,692	-646	50	233,972
August	90,517	696	540	67,676	2	38,667	20,221	322	2,358	-531	54	220,522
September	71,859	665	523	56,381	0	35,496	17,664	308	2,943	-522	48	185,345
October	66,498	734	405	50,125	9	35,038	16,270	283	4,185	-388	48	173,207
November	64,983	639	583	45,119	15	34,541	17,894	237	3,870	-394	49	167,537
December	76,870	950	556	53,347	24	38,871	20,469	246	3,859	-557	50	194,686
Year 2018												
January	88,718	2,491	770	55,797	26	39,366	23,106	288	4,399	-475	41	214,525
February	61,138	617	575	48,715	17	33,941	22,864	314	3,853	-226	38	171,847
March	58,606	595	491	52,161	16	35,262	23,638	446	4,276	-408	48	175,132
April	55,281	632	477	48,151	28	30,580	25,598	480	4,120	-295	39	165,093
May	64,034	745	336	58,251	11	34,479	28,055	463	3,427	-309	45	189,538
June	77,899	756	670	66,774	13	36,437	25,778	503	3,691	-339	50	212,232
July	88,102	668	716	81,297	15	38,293	23,303	477	2,824	-522	55	235,229
August	87,359	711	686	78,025	24	38,885	20,050	476	3,122	-626	56	228,767
September	73,021	781	639	68,655	3	34,377	17,368	436	3,288	-500	47	198,116
October	64,902	751	378	59,071	0	31,364	17,571	418	3,447	-405	43	177,541
November	68,864	703	477	51,796	0	33,043	19,630	325	3,631	-254	50	178,265
December	75,578	657	601	51,512	0	38,223	20,373	290	4,105	-426	49	190,963
Year 2019												
January	74,950	892	634	59,214	12	39,806	22,391	379	3,918	-247	42	201,990
February	59,507	587	564	55,546	22	34,243	20,610	403	3,357	-310	30	174,559
March	56,482	627	464	57,136	31	34,213	23,839	598	4,253	-309	31	177,366
April	44,228	552	276	51,610	0	32,063	25,266	667	4,747	-26	35	159,417
May	55,130	696	552	59,597	0	35,416	29,266	689	3,975	-305	41	185,055
June	60,199	732	398	70,452	23	36,847	25,767	662	3,588	-299	39	198,408
July	77,085	719	551	84,998	18	39,023	22,846	673	3,572	-505	36	229,016
August	72,032	809	501	87,732	16	39,218	20,913	640	3,106	-470	66	224,562
September	64,955	702	460	74,902	10	34,770	17,045	641	4,113	-583	59	197,075
October	49,301	710	146	64,530	0	32,289	16,625	574	4,498	-316	58	168,416
November	55,455	646	251	56,502	19	32,923	18,467	464	4,108	-424	56	168,466
December	53,561	739	315	62,709	2	39,861	19,330	395	4,193	-465	57	180,697

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

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Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report;

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Table 3.2.B. Net Generation from Renewable Sources: Electric Utilities, 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities										Small Scale Generation	Generation From Utility and Small Scale Facilities	
	Wind	Solar Photovoltaic	Solar Thermal	Wood and Wood-Derived Fuels	Landfill Gas	Biogenic Municipal Solid Waste	Other Waste Biomass	Geothermal	Conventional Hydroelectric	Total Renewable Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals													
2009	10,348	28	1	1,748	866	184	261	1,182	247,198	261,815	N/A	N/A	N/A
2010	13,089	101	0	2,328	879	154	259	1,118	236,104	254,031	N/A	N/A	N/A
2011	17,140	187	29	2,023	957	165	295	1,137	291,413	313,346	N/A	N/A	N/A
2012	22,926	551	89	1,836	1,022	184	265	1,143	252,936	280,953	N/A	N/A	N/A
2013	26,436	841	102	2,534	1,114	197	188	1,005	243,040	275,457	N/A	N/A	N/A
2014	27,671	1,094	124	3,050	1,068	191	182	1,116	238,185	272,681	0	1,094	1,218
2015	30,412	1,388	106	3,018	1,061	195	218	1,089	229,640	267,125	0	1,388	1,494
2016	35,070	1,920	75	3,038	1,040	201	237	1,080	247,787	290,448	0	1,920	1,995
2017	37,068	3,326	22	3,226	1,103	184	161	1,022	275,677	321,788	0	3,326	3,348
2018	38,466	4,865	51	3,364	1,004	203	138	1,009	267,336	316,436	0	4,865	4,916
2019	42,660	6,757	28	2,784	964	122	126	771	262,364	316,576	0	6,757	6,785
Year 2017													
January	2,836	158	0	329	96	14	13	94	24,538	28,078	0	158	158
February	3,338	194	0	265	90	9	15	80	21,937	25,927	0	194	194
March	3,907	279	0	311	98	15	19	78	27,285	31,992	0	279	279
April	3,721	307	0	246	95	16	11	90	26,825	31,311	0	307	307
May	3,239	346	1	213	99	15	13	88	29,918	33,930	0	346	347
June	2,960	343	1	245	86	17	14	86	28,240	31,991	0	343	344
July	2,203	321	1	282	88	17	13	89	24,415	27,429	0	321	322
August	1,865	318	4	280	90	19	15	89	20,221	22,901	0	318	322
September	2,575	302	7	166	83	18	13	87	17,664	20,915	0	302	308
October	3,742	282	1	252	89	14	11	77	16,270	20,739	0	282	283
November	3,376	235	2	288	93	15	10	88	17,894	22,001	0	235	237
December	3,306	241	6	350	98	14	15	75	20,469	24,574	0	241	246
Year 2018													
January	3,832	286	1	364	102	11	17	73	23,106	27,793	0	286	288
February	3,363	311	3	291	92	12	12	82	22,864	27,031	0	311	314
March	3,717	437	9	343	100	17	10	89	23,638	28,361	0	437	446
April	3,707	472	9	221	94	16	10	73	25,598	30,199	0	472	480
May	2,990	460	3	228	93	20	6	90	28,055	31,945	0	460	463
June	3,227	498	5	278	75	18	7	85	25,778	29,972	0	498	503
July	2,297	472	6	327	77	21	14	88	23,303	26,604	0	472	477
August	2,612	470	6	317	73	21	11	88	20,050	23,647	0	470	476
September	2,875	432	4	234	68	15	11	85	17,368	21,092	0	432	436
October	3,007	413	5	251	76	18	14	81	17,571	21,437	0	413	418
November	3,164	324	1	277	76	17	14	84	19,630	23,586	0	324	325
December	3,676	290	1	233	77	17	12	90	20,373	24,769	0	290	290
Year 2019													
January	3,443	377	2	284	86	13	14	78	22,391	26,688	0	377	379
February	2,960	400	3	229	77	8	15	70	20,610	24,370	0	400	403
March	3,862	594	4	206	86	8	16	76	23,839	28,690	0	594	598
April	4,422	661	6	165	81	12	12	56	25,266	30,680	0	661	667
May	3,577	686	3	234	83	11	10	60	29,266	33,930	0	686	689
June	3,222	661	1	194	79	11	10	72	25,767	30,016	0	661	662
July	3,083	672	1	316	79	10	11	73	22,846	27,091	0	672	673
August	2,597	636	4	329	80	12	14	74	20,913	24,658	0	636	640
September	3,706	639	2	241	76	8	8	74	17,045	21,800	0	639	641
October	4,153	573	2	198	78	12	5	51	16,625	21,698	0	573	574
November	3,836	464	0	142	76	10	3	40	18,467	23,039	0	464	464
December	3,799	395	1	246	82	8	9	48	19,330	23,918	0	395	395

Wood and Wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Waste Biomass includes sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

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Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 3.3.A. Net Generation by Energy Source: Independent Power Producers, 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities										Total	
	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Nuclear	Hydroelectric Conventional	Solar	Renewable Sources Excluding Hydroelectric and Solar	Hydroelectric Pumped Storage		Other
Annual Totals												
2009	419,031	6,306	4,288	491,839	2,962	381,579	24,308	863	100,997	-1,259	6,146	1,437,061
2010	449,709	5,117	3,497	508,774	2,915	382,126	22,351	1,105	119,851	-1,035	6,345	1,500,754
2011	416,783	3,655	3,431	511,447	2,911	374,906	26,117	1,511	140,442	-928	7,059	1,487,335
2012	354,076	2,757	1,758	627,833	2,984	374,509	20,923	3,525	156,539	-748	7,030	1,551,186
2013	379,270	3,761	1,780	527,522	3,524	382,902	22,018	7,782	181,263	-908	6,742	1,515,657
2014	395,701	6,789	1,410	531,758	3,246	377,295	19,861	16,086	196,723	-1,030	6,690	1,554,530
2015	342,608	6,240	1,601	619,839	3,517	380,498	17,996	22,962	202,858	-987	6,838	1,603,971
2016	307,263	3,360	1,401	624,600	3,758	381,294	18,539	33,502	233,553	-1,057	6,941	1,613,156
2017	304,198	3,281	1,480	572,919	3,978	380,465	23,034	49,376	258,962	-1,047	6,527	1,603,174
2018	278,668	5,487	1,516	645,616	3,935	382,833	23,812	58,337	275,154	-1,119	6,677	1,680,917
2019	235,847	2,669	1,125	692,113	3,883	378,738	24,288	64,480	290,343	-1,000	7,141	1,699,628
Year 2017												
January	28,587	251	139	41,210	336	34,695	1,941	2,140	21,591	-90	583	131,384
February	21,314	198	123	35,536	291	29,650	1,809	3,523	22,000	-90	514	113,867
March	22,696	157	81	40,477	343	30,400	2,175	4,185	25,419	-66	523	126,389
April	21,829	178	113	37,158	282	26,526	2,410	4,546	24,944	-71	507	118,422
May	23,043	221	136	41,502	346	29,585	2,503	5,378	23,207	-73	548	126,395
June	25,528	245	132	52,358	314	31,988	2,182	5,708	20,610	-93	549	139,521
July	30,237	228	138	66,687	350	33,440	2,045	5,188	17,552	-114	572	156,322
August	28,293	232	140	64,699	358	33,717	1,703	4,989	15,669	-107	580	150,272
September	25,701	226	136	53,795	346	32,602	1,399	4,698	18,801	-84	509	138,127
October	22,616	195	110	48,675	318	30,957	1,336	4,323	23,905	-75	518	132,878
November	25,364	221	111	41,715	337	32,077	1,864	2,937	22,697	-84	539	127,777
December	28,990	930	122	49,108	358	34,828	1,667	2,760	22,569	-99	586	141,819
Year 2018												
January	29,839	2,951	137	45,672	318	35,283	1,856	3,000	25,364	-72	575	144,924
February	20,261	133	126	41,986	320	30,849	1,929	3,549	23,179	-89	543	122,786
March	21,377	186	96	46,436	331	31,770	2,114	4,563	26,260	-82	564	133,615
April	17,506	199	137	42,464	326	28,553	2,392	5,522	25,872	-82	527	123,416
May	20,600	248	124	48,762	379	32,841	2,264	6,325	24,380	-81	526	136,366
June	22,994	288	100	55,398	303	33,251	1,724	6,845	24,920	-95	582	146,291
July	26,647	260	139	73,967	344	34,163	1,700	6,214	17,729	-123	586	161,625
August	27,157	292	139	74,126	369	33,398	1,858	6,158	20,775	-121	579	164,730
September	22,941	233	108	64,337	328	30,348	1,692	5,475	18,927	-103	515	144,800
October	21,834	218	126	55,462	255	28,033	1,855	4,508	21,450	-87	556	134,209
November	23,393	245	140	47,623	311	30,911	2,150	3,386	22,175	-88	551	130,797
December	24,120	254	144	49,384	350	33,434	2,277	2,792	24,124	-96	574	137,357
Year 2019												
January	25,344	462	125	52,923	348	33,895	2,266	3,167	24,202	-76	625	143,281
February	19,875	185	91	48,397	329	30,472	2,162	3,395	22,629	-79	544	128,000
March	21,337	155	71	49,981	352	30,867	2,368	5,243	25,079	-100	576	135,930
April	15,198	189	79	44,245	329	28,518	2,429	6,023	27,352	-78	546	124,830
May	16,258	215	145	48,842	325	31,708	2,591	6,406	25,313	-63	623	132,362
June	17,844	196	117	58,469	306	31,958	2,198	7,236	22,393	-86	610	141,241
July	23,140	254	135	77,238	354	33,176	1,942	7,380	22,330	-118	634	166,466
August	21,485	200	134	77,396	361	32,693	1,592	7,163	20,758	-109	638	162,310
September	20,261	186	77	65,571	332	31,294	1,416	6,112	24,002	-88	590	149,753
October	17,011	200	9	57,397	189	29,744	1,607	5,466	26,333	-56	582	138,481
November	19,591	215	41	52,175	307	31,202	1,672	3,859	24,096	-84	572	133,645
December	18,504	213	102	59,480	352	33,212	2,044	3,028	25,856	-64	601	143,328

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

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Table 3.3.B. Net Generation from Renewable Sources: Independent Power Producers, 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities										Small Scale Generation	Generation From Utility and Small Scale Facilities	
	Wind	Solar Photovoltaic	Solar Thermal	Wood and Wood-Derived Fuels	Landfill Gas	Biogenic Municipal Solid Waste	Other Waste Biomass	Geothermal	Conventional Hydroelectric	Total Renewable Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals													
2009	63,538	129	734	8,990	6,718	6,829	1,095	13,826	24,308	126,168	N/A	N/A	N/A
2010	81,547	316	789	9,118	7,227	6,742	1,116	14,101	22,351	143,306	N/A	N/A	N/A
2011	102,981	734	777	8,709	7,120	6,217	1,237	14,180	26,117	168,071	N/A	N/A	N/A
2012	117,822	2,737	787	9,214	7,852	6,056	1,176	14,419	20,923	180,987	N/A	N/A	N/A
2013	141,306	6,969	813	9,768	8,442	5,838	1,139	14,770	22,018	211,063	N/A	N/A	N/A
2014	153,825	13,769	2,317	11,977	9,062	5,838	1,261	14,761	19,861	232,670	0	13,769	16,086
2015	160,135	19,841	3,121	11,545	9,202	5,806	1,342	14,829	17,996	243,816	0	19,841	22,962
2016	191,720	30,194	3,308	10,382	9,255	5,965	1,486	14,746	18,539	285,594	0	30,194	33,502
2017	217,006	46,128	3,248	10,416	9,505	5,652	1,479	14,905	23,034	331,372	0	46,128	49,376
2018	233,931	54,796	3,540	10,021	9,162	5,891	1,226	14,924	23,812	357,303	0	54,796	58,337
2019	251,968	61,290	3,190	9,237	8,739	5,096	1,043	14,260	24,288	379,111	0	61,290	64,480
Year 2017													
January	17,944	2,051	90	860	819	518	136	1,313	1,941	25,672	0	2,051	2,140
February	18,734	2,387	136	796	747	440	124	1,158	1,809	26,332	0	2,387	2,523
March	21,798	3,888	297	905	819	454	134	1,309	2,175	31,779	0	3,888	4,185
April	21,634	4,236	310	728	774	440	116	1,251	2,410	31,899	0	4,236	4,546
May	19,808	4,977	402	765	804	484	132	1,214	2,503	31,089	0	4,977	5,378
June	17,164	5,245	464	848	792	479	129	1,198	2,182	28,501	0	5,245	5,708
July	13,905	4,877	311	958	796	484	126	1,284	2,045	24,784	0	4,877	5,188
August	12,004	4,652	337	991	795	494	111	1,274	1,703	22,361	0	4,652	4,989
September	15,321	4,355	343	922	763	447	104	1,244	1,399	24,898	0	4,355	4,698
October	20,604	4,009	313	831	773	447	113	1,137	1,336	29,564	0	4,009	4,323
November	19,217	2,808	130	875	791	466	132	1,216	1,864	27,498	0	2,808	2,937
December	18,873	2,643	117	936	833	499	123	1,305	1,667	26,996	0	2,643	2,760
Year 2018													
January	21,738	2,873	127	956	786	492	124	1,268	1,856	30,221	0	2,873	3,000
February	19,802	3,361	188	846	741	472	125	1,192	1,929	28,657	0	3,361	3,549
March	22,718	4,314	248	857	794	494	120	1,278	2,114	32,936	0	4,314	4,563
April	22,700	5,216	306	727	751	466	114	1,115	2,392	33,786	0	5,216	5,522
May	20,941	5,898	427	810	765	461	110	1,293	2,264	32,969	0	5,898	6,325
June	21,456	6,333	512	890	745	516	98	1,214	1,724	33,489	0	6,333	6,845
July	14,135	5,839	374	944	761	524	83	1,281	1,700	25,642	0	5,839	6,214
August	17,218	5,754	403	900	774	517	87	1,279	1,858	28,792	0	5,754	6,158
September	15,627	5,049	425	810	700	465	82	1,243	1,692	26,094	0	5,049	5,475
October	18,162	4,238	270	738	770	489	98	1,192	1,855	27,812	0	4,238	4,508
November	18,827	3,219	167	753	774	487	86	1,247	2,150	27,712	0	3,219	3,386
December	20,606	2,701	91	789	802	508	98	1,322	2,277	29,194	0	2,701	2,792
Year 2019													
January	20,777	3,059	109	857	770	438	91	1,270	2,266	29,636	0	3,059	3,167
February	19,563	3,266	128	718	700	390	76	1,182	2,162	28,187	0	3,266	3,395
March	21,789	4,987	256	733	749	409	97	1,302	2,368	32,691	0	4,987	5,243
April	24,404	5,704	319	604	699	384	90	1,171	2,429	35,804	0	5,704	6,023
May	22,095	6,073	333	731	729	441	72	1,245	2,591	34,310	0	6,073	6,406
June	19,143	6,798	439	780	727	437	84	1,223	2,198	31,827	0	6,798	7,236
July	18,944	6,982	398	836	740	454	88	1,269	1,942	31,653	0	6,982	7,380
August	17,339	6,754	409	843	739	459	91	1,288	1,592	29,513	0	6,754	7,163
September	20,723	5,821	292	804	696	431	83	1,264	1,416	31,530	0	5,821	6,112
October	23,342	5,170	296	701	725	419	95	1,052	1,607	33,406	0	5,170	5,466
November	21,181	3,718	141	815	705	406	87	901	1,672	29,627	0	3,718	3,859
December	22,668	2,959	70	815	762	430	88	1,093	2,044	30,928	0	2,959	3,028

Wood and Wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Waste Biomass includes sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report; Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 3.4.A. Net Generation by Energy Source: Commercial Sector, 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities											Total Generation at Utility Scale Facilities	Small Scale Generation		Net Generation From Utility and Small Scale Facilities	
	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Nuclear	Hydroelectric Conventional	Solar	Renewable Sources Excluding Hydroelectric and Solar	Hydroelectric Pumped Storage	Other		Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total	
Annual Totals																
2009	1,096	157	5	4,225	0	0	71	0	1,769	0	842	8,165	N/A	N/A	N/A	
2010	1,111	117	7	4,725	3	0	80	5	1,709	0	834	8,592	N/A	N/A	N/A	
2011	1,049	86	3	5,487	3	0	26	84	2,392	0	950	10,080	N/A	N/A	N/A	
2012	883	191	6	6,603	0	0	28	148	2,397	0	1,046	11,301	N/A	N/A	N/A	
2013	839	118	5	7,154	0	0	44	294	2,662	0	1,118	12,234	N/A	N/A	N/A	
2014	595	247	9	7,227	0	0	38	371	2,862	0	1,171	12,520	5,146	5,516	5,516	
2015	509	183	8	7,471	0	0	35	416	2,803	0	1,170	12,595	5,689	6,106	6,106	
2016	383	77	6	7,730	0	0	217	529	2,697	0	1,068	12,706	6,158	6,687	6,687	
2017	329	103	8	8,042	0	0	240	521	2,729	0	1,088	13,060	7,685	8,206	8,206	
2018	303	132	7	8,419	0	0	227	525	2,688	0	1,010	13,312	9,798	10,324	10,324	
2019	288	116	5	8,610	0	0	188	587	2,840	0	1,076	13,689	11,002	11,588	11,588	
Year 2017																
January	41	13	1	686	0	0	21	24	232	0	84	1,103	420	445	445	
February	32	7	1	603	0	0	20	32	209	0	78	980	458	490	490	
March	33	9	1	655	0	0	24	47	232	0	86	1,087	629	676	676	
April	20	5	0	577	0	0	25	50	222	0	87	986	699	748	748	
May	19	6	0	621	0	0	27	56	243	0	101	1,074	770	826	826	
June	21	5	0	715	0	0	24	58	225	0	89	1,138	777	835	835	
July	25	7	0	782	0	0	21	55	237	0	99	1,227	808	863	863	
August	23	7	1	766	0	0	18	53	233	0	100	1,201	788	841	841	
September	27	6	1	694	0	0	15	49	216	0	90	1,098	709	758	758	
October	24	6	1	659	0	0	13	40	216	0	94	1,054	632	673	673	
November	29	7	1	609	0	0	14	32	226	0	88	1,006	502	534	534	
December	35	23	1	674	0	0	16	26	238	0	91	1,105	492	519	519	
Year 2018																
January	40	41	1	671	0	0	19	29	229	0	84	1,114	552	581	581	
February	32	7	1	626	0	0	19	31	206	0	72	995	605	636	636	
March	27	7	1	647	0	0	21	43	227	0	83	1,058	820	863	863	
April	24	8	0	585	0	0	24	50	217	0	81	989	907	957	957	
May	21	7	0	656	0	0	24	57	221	0	90	1,076	992	1,048	1,048	
June	20	7	0	737	0	0	21	62	224	0	92	1,163	1,003	1,065	1,065	
July	21	11	0	875	0	0	19	59	223	0	90	1,298	1,036	1,094	1,094	
August	23	9	0	892	0	0	17	56	230	0	90	1,318	993	1,049	1,049	
September	24	7	1	771	0	0	16	46	213	0	80	1,156	893	938	938	
October	20	7	1	668	0	0	14	39	223	0	83	1,055	786	826	826	
November	25	12	1	622	0	0	16	29	212	0	77	993	623	652	652	
December	24	9	1	669	0	0	17	25	262	0	88	1,095	589	614	614	
Year 2019																
January	29	19	1	706	0	0	16	30	263	0	95	1,160	629	659	659	
February	27	9	1	654	0	0	15	34	236	0	81	1,057	676	710	710	
March	33	8	1	711	0	0	19	50	262	0	90	1,173	933	983	983	
April	22	7	1	646	0	0	19	54	216	0	88	1,053	1,032	1,086	1,086	
May	18	7	0	663	0	0	22	58	213	0	91	1,072	1,110	1,168	1,168	
June	13	6	0	711	0	0	18	63	229	0	93	1,133	1,118	1,181	1,181	
July	18	9	0	869	0	0	16	69	240	0	92	1,313	1,171	1,241	1,241	
August	17	12	0	852	0	0	15	64	235	0	94	1,290	1,116	1,181	1,181	
September	21	10	0	731	0	0	12	55	230	0	91	1,150	994	1,049	1,049	
October	21	9	0	666	0	0	11	46	235	0	84	1,072	881	927	927	
November	23	9	0	667	0	0	12	36	235	0	84	1,066	683	719	719	
December	27	10	1	735	0	0	14	26	246	0	93	1,151	657	684	684	

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

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Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 3.4.B. Net Generation from Renewable Sources: Commercial Sector, 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities										Small Scale Generation	Generation From Utility and Small Scale Facilities	
	Wind	Solar Photovoltaic	Solar Thermal	Wood and Wood-Derived Fuels	Landfill Gas	Biogenic Municipal Solid Waste	Other Waste Biomass	Geothermal	Conventional Hydroelectric	Total Renewable Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals													
2009	0	0	0	20	318	1,045	386	0	71	1,839	N/A	N/A	N/A
2010	16	5	0	21	256	1,031	386	0	80	1,794	N/A	N/A	N/A
2011	51	84	0	26	952	971	393	0	26	2,502	N/A	N/A	N/A
2012	54	148	0	24	848	1,070	402	0	28	2,573	N/A	N/A	N/A
2013	61	294	0	34	925	1,149	493	0	44	3,000	N/A	N/A	N/A
2014	107	371	0	74	905	1,202	575	0	38	3,271	5,146	5,516	5,516
2015	118	416	0	48	847	1,199	592	0	35	3,255	5,689	6,106	6,106
2016	131	529	0	69	753	1,093	649	0	217	3,443	6,158	6,687	6,687
2017	144	521	0	70	753	1,114	648	0	240	3,490	7,685	8,206	8,206
2018	174	525	0	77	703	1,038	664	33	227	3,441	9,798	10,324	10,324
2019	179	587	0	90	626	869	634	442	188	3,615	11,002	11,588	11,588
Year 2017													
January	11	24	0	8	68	86	59	0	21	277	420	445	445
February	11	32	0	7	60	79	51	0	20	260	458	490	490
March	17	47	0	3	67	88	58	0	24	303	629	676	676
April	15	50	0	5	59	89	54	0	25	297	699	748	748
May	13	56	0	7	64	103	56	0	27	326	770	826	826
June	11	58	0	6	63	91	54	0	24	307	777	835	835
July	8	55	0	7	64	102	57	0	21	313	808	863	863
August	6	53	0	7	63	102	54	0	18	303	788	841	841
September	11	49	0	2	62	92	49	0	15	280	709	758	758
October	15	40	0	5	55	97	45	0	13	269	632	673	673
November	14	32	0	6	63	90	54	0	14	273	502	534	534
December	13	26	0	6	67	93	59	0	16	281	492	519	519
Year 2018													
January	18	29	0	9	61	86	56	0	19	277	552	581	581
February	15	31	0	6	57	74	53	0	19	256	605	636	636
March	18	43	0	5	63	85	56	0	21	292	820	863	863
April	16	50	0	2	60	84	55	0	24	291	907	957	957
May	14	57	0	4	57	92	54	0	24	302	992	1,048	1,048
June	14	62	0	8	55	94	54	0	21	308	1,003	1,065	1,065
July	10	59	0	9	58	92	55	0	19	301	1,036	1,094	1,094
August	11	56	0	11	59	92	57	0	17	304	993	1,049	1,049
September	12	46	0	8	57	81	54	0	16	274	893	938	938
October	15	39	0	4	60	86	58	0	14	276	786	826	826
November	16	29	0	2	57	81	56	0	16	256	623	652	652
December	15	25	0	8	59	91	55	33	17	304	589	614	614
Year 2019													
January	17	30	0	8	62	78	55	42	16	310	629	659	659
February	15	34	0	9	55	66	50	41	15	284	676	710	710
March	17	50	0	11	61	73	55	44	19	330	933	983	983
April	17	54	0	4	42	72	53	27	19	289	1,032	1,086	1,086
May	14	58	0	2	35	74	51	37	22	292	1,110	1,168	1,168
June	12	63	0	4	52	75	52	34	18	310	1,118	1,181	1,181
July	11	69	0	16	54	73	52	33	16	325	1,171	1,241	1,241
August	9	64	0	9	56	75	54	31	15	315	1,116	1,181	1,181
September	14	55	0	8	55	73	51	30	12	297	994	1,049	1,049
October	17	46	0	7	53	67	52	38	11	292	881	927	927
November	17	36	0	6	51	67	53	42	12	283	683	719	719
December	17	26	0	5	50	75	56	43	14	286	657	684	684

Wood and Wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Waste Biomass includes sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

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Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

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Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 3.5.A. Net Generation by Energy Source: Industrial Sector, 2009 - 2019
(Thousand Megawatthours)

Period	Generation at Utility Scale Facilities											Total Generation at Utility Scale Facilities	Small Scale Generation		Net Generation From Utility and Small Scale Facilities	
	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Nuclear	Hydroelectric Conventional	Solar	Renewable Sources Excluding Hydroelectric and Solar	Hydroelectric Pumped Storage	Other		Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total	Estimated Total Solar
Annual Totals																
2009	13,686	1,474	1,489	75,748	7,574	0	1,868	0	26,033	0	4,457	132,329	N/A	N/A	N/A	
2010	18,441	844	1,414	81,583	8,343	0	1,668	2	26,574	0	5,214	144,082	N/A	N/A	N/A	
2011	14,490	657	1,234	81,911	8,624	0	1,799	7	27,612	0	5,541	141,875	N/A	N/A	N/A	
2012	12,603	563	2,359	86,500	8,913	0	2,353	14	27,693	0	5,108	146,107	N/A	N/A	N/A	
2013	12,554	495	2,036	88,733	8,531	0	3,463	17	29,074	0	5,113	150,015	N/A	N/A	N/A	
2014	12,341	544	1,389	86,209	8,664	0	1,282	16	28,659	0	4,978	144,083	1,139	1,156	1,156	
2015	10,896	563	990	88,355	9,401	0	1,410	21	28,614	0	5,462	145,712	1,451	1,472	1,472	
2016	9,103	503	909	91,197	8,895	0	1,269	27	28,663	0	5,324	145,890	2,060	2,087	2,087	
2017	7,669	463	776	91,647	8,343	0	1,382	42	28,508	0	4,928	143,758	2,364	2,406	2,406	
2018	7,011	517	640	94,892	9,377	0	1,149	47	28,440	0	4,725	146,798	2,636	2,683	2,683	
2019	5,957	424	576	100,065	8,554	0	1,033	85	27,276	0	4,567	148,537	3,041	3,127	3,127	
Year 2017																
January	720	42	61	7,939	697	0	127	2	2,401	0	382	12,370	123	124	124	
February	633	37	60	7,077	669	0	116	2	2,208	0	364	11,165	137	139	139	
March	644	38	82	7,517	702	0	129	3	2,342	0	410	11,867	197	200	200	
April	573	36	58	7,281	701	0	149	4	2,264	0	411	11,476	213	217	217	
May	616	35	57	7,405	705	0	158	4	2,292	0	398	11,670	239	243	243	
June	662	33	71	7,741	669	0	129	5	2,417	0	416	12,143	241	246	246	
July	654	34	78	8,322	679	0	117	5	2,539	0	485	12,912	252	257	257	
August	655	33	83	8,059	774	0	93	5	2,557	0	483	12,743	246	251	251	
September	615	35	52	7,185	714	0	74	4	2,278	0	388	11,345	223	227	227	
October	637	39	56	7,367	672	0	79	3	2,308	0	370	11,531	201	204	204	
November	610	47	61	7,485	649	0	116	3	2,357	0	404	11,731	156	158	158	
December	650	55	58	8,269	712	0	96	2	2,545	0	418	12,806	138	141	141	
Year 2018																
January	687	73	57	8,153	752	0	83	2	2,450	0	410	12,668	146	149	149	
February	619	47	52	7,184	755	0	89	3	2,177	0	340	11,265	155	158	158	
March	616	41	54	7,280	811	0	87	4	2,437	0	413	11,742	221	225	225	
April	535	33	51	7,172	744	0	102	4	2,237	0	380	11,258	241	245	245	
May	572	41	56	7,614	778	0	101	5	2,390	0	409	11,967	267	271	271	
June	590	34	64	7,918	775	0	74	5	2,358	0	381	12,199	268	273	273	
July	606	49	57	8,609	813	0	78	5	2,540	0	381	13,138	277	282	282	
August	590	35	54	8,634	909	0	91	5	2,474	0	421	13,212	268	273	273	
September	558	34	51	8,022	773	0	90	4	2,290	0	363	12,185	242	247	247	
October	507	39	58	7,941	762	0	108	4	2,307	0	402	12,127	220	224	224	
November	536	46	38	8,127	734	0	116	3	2,318	0	396	12,313	174	177	177	
December	596	46	49	8,237	771	0	130	2	2,464	0	429	12,724	157	160	160	
Year 2019																
January	581	48	40	8,739	664	0	124	4	2,393	0	432	13,025	168	172	172	
February	521	40	36	7,538	597	0	94	5	2,156	0	348	11,335	178	182	182	
March	500	37	37	7,978	702	0	108	7	2,348	0	384	12,099	254	261	261	
April	475	40	45	7,552	619	0	106	8	2,110	0	346	11,301	278	286	286	
May	479	30	41	7,951	730	0	104	9	2,150	0	361	11,854	309	317	317	
June	484	31	47	8,196	680	0	95	10	2,244	0	360	12,147	311	320	320	
July	528	28	105	8,837	813	0	71	10	2,391	0	394	13,178	321	331	331	
August	506	33	50	8,976	770	0	59	9	2,419	0	413	13,236	311	320	320	
September	470	34	44	8,483	770	0	52	8	2,211	0	402	12,474	281	289	289	
October	445	32	44	8,348	735	0	63	7	2,233	0	375	12,281	255	262	262	
November	480	36	41	8,561	721	0	67	5	2,249	0	371	12,531	198	204	204	
December	489	35	45	8,906	753	0	91	4	2,372	0	382	13,077	179	183	183	

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report;

Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

**Table 3.5.B. Net Generation from Renewable Sources: Industrial Sector, 2009 - 2019
(Thousand Megawatthours)**

Period	Generation at Utility Scale Facilities										Small Scale Generation	Generation From Utility and Small Scale Facilities	
	Wind	Solar Photovoltaic	Solar Thermal	Wood and Wood-Derived Fuels	Landfill Gas	Biogenic Municipal Solid Waste	Other Waste Biomass	Geothermal	Conventional Hydroelectric	Total Renewable Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals													
2009	0	0	0	25,292	22	0	718	0	1,868	27,901	N/A	N/A	N/A
2010	0	2	0	25,706	15	0	853	0	1,868	28,244	N/A	N/A	N/A
2011	5	7	0	26,691	15	2	900	0	1,799	29,418	N/A	N/A	N/A
2012	19	14	0	26,725	81	10	857	0	2,353	30,060	N/A	N/A	N/A
2013	37	17	0	27,691	178	2	1,166	0	3,463	32,554	N/A	N/A	N/A
2014	53	16	0	27,239	185	-2	1,185	0	1,282	29,957	1,139	1,156	1,156
2015	53	21	0	27,318	182	12	1,049	0	1,410	30,045	1,451	1,472	1,472
2016	71	27	0	27,458	170	6	959	0	1,269	29,960	2,060	2,087	2,087
2017	84	42	0	27,412	183	1	827	0	1,382	29,932	2,364	2,406	2,406
2018	97	47	0	27,475	168	4	697	0	1,149	29,636	2,636	2,683	2,683
2019	100	85	0	26,433	139	5	598	0	1,033	28,395	3,041	3,127	3,127
Year 2017													
January	7	2	0	2,305	16	-1	74	0	127	2,530	123	124	124
February	8	2	0	2,117	16	-1	68	0	116	2,326	137	139	139
March	9	3	0	2,237	17	-1	80	0	129	2,474	197	200	200
April	8	4	0	2,167	15	-1	74	0	149	2,417	213	217	217
May	8	4	0	2,204	14	1	66	0	158	2,454	239	243	243
June	7	5	0	2,337	16	0	56	0	129	2,551	241	246	246
July	4	5	0	2,457	13	1	64	0	117	2,661	252	257	257
August	4	5	0	2,472	15	1	65	0	93	2,655	246	251	251
September	4	4	0	2,202	14	1	57	0	74	2,356	223	227	227
October	8	3	0	2,215	15	1	69	0	79	2,390	201	204	204
November	9	3	0	2,257	16	0	75	0	116	2,476	156	158	158
December	8	2	0	2,442	17	0	79	0	96	2,643	138	141	141
Year 2018													
January	11	2	0	2,357	15	0	67	0	83	2,535	146	149	149
February	9	3	0	2,091	15	0	61	0	89	2,269	155	158	158
March	10	4	0	2,342	16	1	68	0	87	2,528	221	225	225
April	9	4	0	2,151	16	0	60	0	102	2,343	241	245	245
May	8	5	0	2,310	14	0	58	0	101	2,496	267	271	271
June	6	5	0	2,294	14	1	43	0	74	2,437	268	273	273
July	5	5	0	2,470	14	1	51	0	78	2,623	277	282	282
August	5	5	0	2,402	13	1	53	0	91	2,570	268	273	273
September	6	4	0	2,228	12	0	44	0	90	2,385	242	247	247
October	9	4	0	2,223	13	0	62	0	108	2,418	220	224	224
November	9	3	0	2,231	13	0	65	0	116	2,436	174	177	177
December	9	2	0	2,374	13	0	67	0	130	2,596	157	160	160
Year 2019													
January	11	4	0	2,317	12	0	53	0	124	2,520	168	172	172
February	9	5	0	2,086	11	0	50	0	94	2,255	178	182	182
March	10	7	0	2,267	12	0	59	0	108	2,462	254	261	261
April	10	8	0	2,034	12	1	53	0	106	2,224	278	286	286
May	8	9	0	2,084	12	0	46	0	104	2,263	309	317	317
June	8	10	0	2,179	11	0	46	0	95	2,349	311	320	320
July	6	10	0	2,331	11	1	43	0	71	2,473	321	331	331
August	5	9	0	2,357	11	0	45	0	59	2,488	311	320	320
September	5	8	0	2,157	11	0	37	0	52	2,271	281	289	289
October	9	7	0	2,157	12	1	53	0	63	2,302	255	262	262
November	8	5	0	2,174	12	0	55	0	67	2,321	198	204	204
December	11	4	0	2,289	13	1	59	0	91	2,466	179	183	183

Wood and Wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Waste Biomass includes sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

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Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report; Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

**Table 3.6. Net Generation by Energy Source: Residential Sector, 2014 - 2019
(Thousand Megawatthours)**

Period	Small Scale Generation	
	Estimated Small Scale Solar Photovoltaic Generation	
Annual Totals		
2014		4,947
2015		6,999
2016		10,595
2017		13,942
2018		17,105
2019		20,914
Year 2017		
January		703
February		789
March		1,147
April		1,283
May		1,415
June		1,469
July		1,495
August		1,446
September		1,293
October		1,157
November		904
December		841
Year 2018		
January		921
February		1,007
March		1,393
April		1,592
May		1,753
June		1,788
July		1,834
August		1,756
September		1,539
October		1,385
November		1,108
December		1,029
Year 2019		
January		1,107
February		1,205
March		1,727
April		1,935
May		2,130
June		2,175
July		2,268
August		2,184
September		1,930
October		1,697
November		1,346
December		1,210

See Glossary for definitions. Values are final.

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Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Sources:

Estimated small scale solar photovoltaic generation and small scale solar photovoltaic capacity are based on data from Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 3.7. Utility Scale Facility Net Generation by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	99,997	105,548	-5.3%	2,414	2,968	93,277	98,313	1,307	1,371	2,998	2,897
Connecticut	40,050	39,454	1.5%	99	109	38,846	38,267	445	433	661	644
Maine	10,491	11,281	-7.0%	4	0	8,457	9,308	132	165	1,898	1,807
Massachusetts	21,516	27,173	-20.8%	407	587	20,239	25,676	606	642	264	269
New Hampshire	18,027	17,087	5.5%	935	1,417	16,997	15,571	64	69	30	31
Rhode Island	7,624	8,375	-9.0%	0	0	7,421	8,170	57	59	146	146
Vermont	2,290	2,179	5.1%	970	856	1,316	1,320	3	3	0	0
Middle Atlantic	431,617	422,940	2.1%	35,171	35,936	389,911	380,377	2,381	2,286	4,155	4,340
New Jersey	71,019	75,034	-5.4%	145	125	69,390	73,602	704	602	780	704
New York	131,603	132,521	-0.7%	34,926	35,660	94,557	94,641	1,278	1,312	843	908
Pennsylvania	228,995	215,386	6.3%	100	151	225,964	212,134	399	373	2,532	2,728
East North Central	586,452	609,422	-3.8%	215,936	240,648	357,937	356,005	1,751	1,924	10,829	10,845
Illinois	184,470	188,003	-1.9%	5,192	5,450	176,335	179,341	363	405	2,580	2,807
Indiana	102,505	113,460	-9.7%	70,437	84,830	27,387	24,138	292	250	4,390	4,242
Michigan	116,701	115,837	0.7%	78,882	81,450	35,687	32,195	729	867	1,403	1,324
Ohio	120,001	126,185	-4.9%	13,064	17,624	106,004	107,628	230	256	704	676
Wisconsin	62,774	65,937	-4.8%	48,361	51,294	12,524	12,702	137	145	1,752	1,796
West North Central	343,171	353,902	-3.0%	271,615	290,130	66,980	59,134	648	631	3,928	4,006
Iowa	61,674	63,381	-2.7%	46,159	49,513	13,035	11,531	231	227	2,248	2,110
Kansas	50,888	51,710	-1.6%	31,468	34,518	19,305	17,091	17	16	98	86
Minnesota	59,379	61,517	-3.5%	44,812	48,577	13,249	11,416	191	193	1,127	1,331
Missouri	78,279	85,095	-8.0%	72,581	79,780	5,472	5,098	192	175	34	43
Nebraska	37,298	36,966	0.9%	30,018	31,167	6,914	5,407	18	18	348	374
North Dakota	41,147	42,615	-3.4%	34,191	35,946	6,896	6,604	0	NM	60	62
South Dakota	14,507	12,616	15.0%	12,385	10,628	2,109	1,988	0	0	12	0
South Atlantic	811,091	819,993	-1.1%	669,612	674,016	120,788	125,574	2,004	1,728	18,687	18,675
Delaware	5,259	6,241	-15.7%	35	37	3,886	5,124	6	6	1,332	1,073
District of Columbia	174	79	119.4%	0	0	9	0	165	79	0	0
Florida	245,603	244,252	0.6%	229,438	227,284	10,989	11,808	70	80	5,107	5,079
Georgia	128,692	129,239	-0.4%	107,079	109,171	16,421	14,824	7	7	5,184	5,238
Maryland	39,329	43,810	-10.2%	3,359	3,797	34,785	38,930	1,039	840	146	244
North Carolina	131,174	134,249	-2.3%	111,312	117,492	17,822	14,636	347	332	1,692	1,790
South Carolina	100,108	99,364	0.7%	95,689	94,058	2,838	3,602	3	3	1,577	1,702
Virginia	96,828	95,509	1.4%	74,386	72,379	19,670	20,264	368	382	2,404	2,484
West Virginia	63,926	67,249	-4.9%	48,312	49,799	14,367	16,385	0	0	1,246	1,065
East South Central	362,770	368,891	-1.7%	313,578	312,387	39,144	47,022	213	229	9,836	9,253
Alabama	142,679	145,058	-1.6%	102,180	102,665	35,596	37,771	0	0	4,903	4,622
Kentucky	71,804	78,804	-8.9%	70,897	77,557	396	715	0	0	512	533
Mississippi	65,959	63,474	3.9%	61,366	53,311	2,702	8,248	0	0	1,891	1,915
Tennessee	82,327	81,555	0.9%	79,135	78,854	449	289	213	229	2,531	2,183
West South Central	733,035	733,704	-0.1%	244,261	256,469	409,475	398,531	975	957	78,324	77,747
Arkansas	64,443	67,999	-5.2%	57,343	59,485	5,451	6,829	56	44	1,592	1,642
Louisiana	100,175	102,128	-1.9%	59,912	62,152	7,912	9,167	164	170	32,187	30,639
Oklahoma	85,217	86,224	-1.2%	41,188	41,868	43,198	43,469	0	0	830	887
Texas	483,201	477,352	1.2%	85,818	92,965	352,914	339,066	755	743	43,714	44,579
Mountain	372,421	371,498	0.2%	286,297	289,926	82,251	77,889	1,011	576	2,862	3,107
Arizona	113,552	111,925	1.5%	96,645	98,448	16,754	13,323	152	154	0	0
Colorado	56,338	55,386	1.7%	43,713	42,037	12,514	13,248	36	27	75	76
Idaho	18,408	18,172	1.3%	11,986	11,904	5,777	5,695	65	50	580	523
Montana	27,797	28,213	-1.5%	10,708	12,087	17,057	16,090	0	0	32	36
Nevada	39,890	39,640	0.6%	27,293	27,482	11,715	11,667	569	159	312	332
New Mexico	35,175	32,674	7.7%	23,575	21,112	11,486	11,431	109	107	4	24
Utah	39,117	39,375	-0.7%	34,770	34,901	3,747	3,803	80	79	520	592
Wyoming	42,146	46,112	-8.6%	37,607	41,955	3,201	2,633	0	0	1,338	1,525
Pacific Contiguous	370,506	376,336	-1.5%	215,445	223,897	135,809	134,016	2,721	2,885	16,531	15,538
California	201,784	195,466	3.2%	82,940	75,239	102,455	103,882	2,627	2,779	13,762	13,566
Oregon	62,258	64,114	-2.9%	44,038	47,020	17,578	16,410	71	74	570	609
Washington	106,464	116,757	-8.8%	88,467	101,638	15,776	13,724	22	32	2,199	1,363
Pacific Noncontiguous	15,821	16,044	-1.4%	10,699	10,871	4,056	4,057	678	726	388	391
Alaska	6,071	6,247	-2.8%	5,447	5,575	243	234	265	328	116	110
Hawaii	9,750	9,797	-0.5%	5,252	5,296	3,813	3,822	413	398	272	281
U.S. Total	4,126,882	4,178,277	-1.2%	2,265,028	2,337,250	1,699,628	1,680,917	13,689	13,312	148,537	146,798

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.8. Utility Scale Facility Net Generation from Coal by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
	Generation at Utility Scale Facilities			Electric Utilities		Independent Power Producers		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	467	1,061	-56.0%	343	660	114	386	0	0	11	15
Connecticut	53	330	-83.9%	0	0	53	330	0	0	0	0
Maine	71	71	0.3%	0	0	61	56	0	0	11	15
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	343	660	-48.1%	343	660	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	39,392	45,970	-14.3%	0	0	39,304	45,843	0	0	88	127
New Jersey	1,042	1,193	-12.7%	0	0	1,042	1,193	0	0	0	0
New York	422	690	-38.9%	0	0	422	679	0	0	0	11
Pennsylvania	37,929	44,086	-14.0%	0	0	37,841	43,970	0	0	88	116
East North Central	219,992	271,477	-19.0%	128,525	161,313	89,534	107,879	58	69	1,875	2,217
Illinois	48,788	59,642	-18.2%	3,482	4,052	43,772	53,810	13	31	1,522	1,748
Indiana	60,762	77,455	-21.6%	56,524	73,105	4,193	4,312	45	38	0	0
Michigan	37,341	42,331	-11.8%	36,942	41,830	381	427	0	0	18	73
Ohio	46,765	58,727	-20.4%	5,575	9,391	41,187	49,330	0	0	3	6
Wisconsin	26,335	33,322	-21.0%	26,003	32,933	0	0	0	0	333	389
West North Central	161,119	189,023	-14.8%	158,954	186,667	0	0	79	85	2,086	2,270
Iowa	22,159	28,553	-22.4%	20,551	26,969	0	0	68	74	1,541	1,509
Kansas	17,315	20,474	-15.4%	17,315	20,474	0	0	0	0	0	0
Minnesota	17,804	23,455	-24.1%	17,605	23,068	0	0	2	1	197	387
Missouri	55,686	63,355	-12.1%	55,678	63,345	0	0	9	10	0	0
Nebraska	20,385	23,305	-12.5%	20,038	22,931	0	0	0	0	348	374
North Dakota	25,151	27,541	-8.7%	25,151	27,541	0	0	0	0	0	0
South Dakota	2,617	2,339	11.9%	2,617	2,339	0	0	0	0	0	0
South Atlantic	159,468	195,286	-18.3%	141,570	170,331	17,280	24,215	40	45	577	695
Delaware	119	273	-56.4%	0	0	119	273	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	21,248	30,272	-29.8%	21,197	30,175	0	0	0	0	51	98
Georgia	25,245	32,181	-21.6%	25,065	31,983	0	0	0	0	181	198
Maryland	5,722	10,067	-43.2%	0	0	5,690	10,007	0	0	32	60
North Carolina	30,672	31,690	-3.2%	30,413	31,412	86	98	36	39	137	142
South Carolina	14,861	19,497	-23.8%	14,640	19,481	212	0	0	0	10	16
Virginia	3,418	9,266	-63.1%	3,176	8,453	71	625	4	6	167	182
West Virginia	58,182	62,039	-6.2%	47,080	48,827	11,101	13,211	0	0	0	0
East South Central	101,476	117,192	-13.4%	98,613	113,670	2,363	2,831	0	0	500	691
Alabama	26,655	31,778	-16.1%	26,638	31,734	0	0	0	0	17	44
Kentucky	51,714	59,168	-12.6%	51,714	59,168	0	0	0	0	0	0
Mississippi	4,414	5,280	-16.4%	2,052	2,449	2,363	2,831	0	0	0	0
Tennessee	18,692	20,967	-10.8%	18,209	20,320	0	0	0	0	483	647
West South Central	130,375	168,412	-22.6%	67,575	92,704	62,639	75,458	0	0	161	250
Arkansas	23,313	29,996	-22.3%	19,338	24,754	3,933	5,197	0	0	43	46
Louisiana	7,419	11,787	-37.1%	5,633	7,780	1,786	4,007	0	0	0	0
Oklahoma	7,826	14,907	-47.5%	7,708	12,868	0	1,834	0	0	119	205
Texas	91,817	111,723	-17.8%	34,897	47,302	56,920	64,420	0	0	0	0
Mountain	140,704	151,985	-7.4%	124,330	136,335	15,979	15,208	0	0	395	442
Arizona	23,218	30,745	-24.5%	23,218	30,745	0	0	0	0	0	0
Colorado	25,321	26,382	-4.0%	25,316	26,370	0	0	0	0	5	12
Idaho	21	20	3.3%	0	0	0	0	0	0	21	20
Montana	14,101	13,360	5.5%	261	234	13,831	13,116	0	0	9	10
Nevada	2,735	2,485	10.1%	1,689	1,443	1,047	1,042	0	0	0	0
New Mexico	14,692	13,402	9.6%	14,692	13,402	0	0	0	0	0	0
Utah	25,241	25,912	-2.6%	24,842	25,501	400	412	0	0	0	0
Wyoming	35,376	39,679	-10.8%	34,314	38,642	702	638	0	0	360	400
Pacific Contiguous	9,980	7,141	39.8%	2,569	1,476	7,146	5,359	0	0	264	305
California	240	281	-14.5%	0	0	0	0	0	0	240	281
Oregon	2,569	1,476	74.0%	2,569	1,476	0	0	0	0	0	0
Washington	7,170	5,383	33.2%	0	0	7,146	5,359	0	0	24	24
Pacific Noncontiguous	1,985	1,940	2.3%	406	347	1,489	1,489	91	103	0	0
Alaska	683	629	8.7%	406	347	187	178	91	103	0	0
Hawaii	1,302	1,311	-0.7%	0	0	1,302	1,311	0	0	0	0
U.S. Total	964,957	1,149,487	-16.1%	722,885	863,505	235,847	278,668	268	303	5,957	7,011

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Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.9. Utility Scale Facility Net Generation from Petroleum Liquids by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	193	1,246	-84.5%	23	184	116	1,006	37	36	17	20
Connecticut	12	339	-96.4%	5	5	1	329	3	3	3	1
Maine	35	189	-81.6%	0	0	20	171	2	2	12	17
Massachusetts	104	461	-77.5%	7	75	79	371	16	13	1	2
New Hampshire	30	178	-83.1%	9	101	7	61	13	16	0	0
Rhode Island	11	76	-85.4%	0	0	9	74	2	2	0	0
Vermont	1	3	-67.1%	1	3	0	0	0	0	0	0
Middle Atlantic	740	2,452	-69.8%	244	621	457	1,767	15	23	24	41
New Jersey	71	302	-76.3%	1	3	67	293	2	5	1	1
New York	512	1,591	-67.8%	242	616	245	926	9	13	16	35
Pennsylvania	157	559	-72.0%	0	2	145	548	4	4	7	5
East North Central	481	556	-13.4%	291	299	175	226	2	6	14	25
Illinois	44	53	-18.0%	8	8	36	45	0	0	0	0
Indiana	127	131	-3.0%	119	110	0	0	NM	1	7	19
Michigan	94	117	-20.3%	90	112	0	0	1	4	2	2
Ohio	164	219	-24.7%	30	34	130	180	0	1	3	3
Wisconsin	53	36	47.3%	43	35	9	1	0	0	1	1
West North Central	450	323	39.6%	436	300	10	19	2	2	1	1
Iowa	161	67	140.1%	157	63	4	4	0	0	0	0
Kansas	78	52	50.2%	78	52	0	0	0	0	0	0
Minnesota	51	47	8.7%	40	28	7	16	2	2	1	1
Missouri	97	100	-2.6%	97	100	0	0	0	0	0	0
Nebraska	16	12	29.6%	16	12	0	0	0	0	0	0
North Dakota	34	38	-12.4%	34	38	0	0	0	0	0	0
South Dakota	14	6	113.2%	14	6	0	0	0	0	0	0
South Atlantic	1,175	3,398	-65.4%	899	2,386	157	819	45	55	74	138
Delaware	19	201	-90.7%	0	6	18	195	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	324	572	-43.3%	301	537	7	12	0	0	17	23
Georgia	107	279	-61.5%	61	105	5	92	4	5	38	77
Maryland	67	260	-74.1%	-1	3	66	253	1	1	1	3
North Carolina	192	633	-69.7%	177	570	5	41	1	2	9	19
South Carolina	79	344	-77.2%	69	327	3	5	0	0	7	11
Virginia	258	950	-72.9%	164	692	52	207	40	47	2	4
West Virginia	128	159	-19.2%	127	145	1	14	0	0	0	0
East South Central	224	293	-23.6%	209	250	4	30	0	0	11	13
Alabama	20	66	-69.7%	10	29	3	29	0	0	6	7
Kentucky	50	70	-28.3%	50	70	0	0	0	0	0	0
Mississippi	14	27	-49.8%	12	23	0	0	0	0	2	4
Tennessee	140	130	7.8%	137	127	0	0	0	0	2	2
West South Central	147	136	8.1%	101	104	35	24	1	1	10	8
Arkansas	47	36	32.7%	33	27	12	6	0	0	3	3
Louisiana	28	21	33.0%	18	21	11	0	0	0	0	0
Oklahoma	18	18	-2.6%	16	17	0	0	0	0	1	1
Texas	54	61	-11.7%	34	39	13	18	1	1	6	4
Mountain	367	186	97.1%	349	165	18	21	0	0	0	0
Arizona	64	50	27.6%	64	50	0	0	0	0	0	0
Colorado	8	12	-33.0%	8	11	0	0	0	0	0	0
Idaho	0	0	304.3%	0	0	0	0	0	0	0	0
Montana	16	17	-6.2%	2	0	14	16	0	0	0	0
Nevada	12	10	20.5%	10	7	2	3	0	0	0	0
New Mexico	184	21	785.4%	184	21	0	0	0	0	0	0
Utah	40	37	8.8%	38	35	2	1	0	0	0	0
Wyoming	44	40	9.0%	44	40	0	0	0	0	0	0
Pacific Contiguous	77	97	-20.5%	43	43	15	16	1	1	19	38
California	51	69	-26.0%	35	34	6	5	1	1	9	29
Oregon	7	5	36.4%	7	5	0	0	0	0	0	0
Washington	20	24	-16.0%	1	4	9	10	0	0	10	9
Pacific Noncontiguous	7,765	7,558	2.7%	5,817	5,756	1,682	1,560	13	9	254	233
Alaska	901	809	11.4%	845	761	3	0	7	6	47	43
Hawaii	6,864	6,749	1.7%	4,972	4,995	1,679	1,560	6	3	207	191
U.S. Total	11,619	16,245	-28.5%	8,410	10,108	2,669	5,487	116	132	424	517

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Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.10. Utility Scale Facility Net Generation from Petroleum Coke by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	0	0	--	0	0	0	0	0	0	0	0
Connecticut	0	0	--	0	0	0	0	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	0	0	--	0	0	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	99	127	-21.5%	0	0	0	0	0	0	99	127
New Jersey	71	60	17.7%	0	0	0	0	0	0	71	60
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	28	66	-57.1%	0	0	0	0	0	0	28	66
East North Central	1,591	2,295	-30.7%	762	1,085	676	1,087	0	0	153	123
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	822	1,096	-25.0%	673	984	0	0	0	0	149	112
Ohio	680	1,097	-38.0%	0	0	676	1,087	0	0	4	10
Wisconsin	90	101	-11.6%	90	101	0	0	0	0	0	0
West North Central	77	44	77.6%	0	0	0	0	5	7	73	36
Iowa	77	44	77.6%	0	0	0	0	5	7	73	36
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	0	0	--	0	0	0	0	0	0	0	0
Missouri	0	0	--	0	0	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	1,341	1,662	-19.3%	1,201	1,506	0	0	0	0	140	156
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	1,201	1,506	-20.2%	1,201	1,506	0	0	0	0	0	0
Georgia	140	156	-10.6%	0	0	0	0	0	0	140	156
Maryland	0	0	--	0	0	0	0	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	0	0	--	0	0	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	0	0	-100.0%	0	0	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	-100.0%	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	0	0	--	0	0	0	0	0	0	0	0
West South Central	3,261	4,425	-26.3%	3,149	4,227	0	0	0	0	111	198
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	3,160	4,356	-27.5%	3,149	4,227	0	0	0	0	11	130
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	100	68	47.4%	0	0	0	0	0	0	100	68
Mountain	449	429	4.6%	0	0	449	429	0	0	0	0
Arizona	0	0	--	0	0	0	0	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	449	429	4.6%	0	0	449	429	0	0	0	0
Nevada	0	0	--	0	0	0	0	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	0	0	--	0	0	0	0	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	0	0	--	0	0	0	0	0	0	0	0
California	0	0	--	0	0	0	0	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	0	0	--	0	0	0	0	0	0	0	0
Pacific Noncontiguous	0	0	--	0	0	0	0	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	6,819	8,981	-24.1%	5,112	6,817	1,125	1,516	5	7	576	640

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Negative generation denotes that electric power consumed for plant use exceeds gross generation.

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Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.11. Utility Scale Facility Net Generation from Natural Gas by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	49,272	51,613	-4.5%	151	258	46,503	48,764	1,055	1,087	1,562	1,504
Connecticut	21,343	20,006	6.7%	54	59	20,195	18,875	437	429	658	643
Maine	1,797	2,331	-22.9%	0	0	1,295	1,878	31	30	472	422
Massachusetts	15,407	18,386	-16.2%	92	167	14,529	17,387	529	570	258	262
New Hampshire	3,583	2,992	19.8%	5	31	3,537	2,922	11	8	30	31
Rhode Island	7,141	7,897	-9.6%	0	0	6,948	7,702	48	49	145	146
Vermont	2	2	3.0%	1	1	0	0	1	1	0	0
Middle Atlantic	186,102	166,065	12.1%	9,947	10,538	172,408	151,816	1,205	1,182	2,542	2,529
New Jersey	40,449	38,863	4.1%	158	161	39,615	38,119	251	181	425	401
New York	47,612	50,810	-6.3%	9,785	10,370	36,437	38,948	812	870	578	623
Pennsylvania	98,040	76,391	28.3%	4	7	96,356	74,749	142	130	1,538	1,505
East North Central	159,477	136,058	17.2%	51,737	45,498	102,150	85,671	1,424	1,462	4,167	3,427
Illinois	21,346	17,241	23.8%	1,534	1,224	18,923	15,040	341	364	548	613
Indiana	32,042	26,817	19.5%	13,069	10,965	16,746	14,156	201	168	2,025	1,528
Michigan	34,430	30,987	11.1%	11,751	10,493	21,475	19,459	604	612	599	423
Ohio	51,325	44,215	16.1%	7,169	7,956	43,706	35,809	214	243	236	207
Wisconsin	20,334	16,799	21.0%	18,214	14,861	1,300	1,207	63	75	758	656
West North Central	34,908	29,103	19.9%	28,395	24,754	5,316	3,245	354	321	843	783
Iowa	7,684	7,340	4.7%	6,991	6,705	0	7	117	98	576	529
Kansas	3,024	3,006	0.6%	2,931	2,922	0	0	0	0	93	84
Minnesota	12,607	8,555	47.4%	9,560	7,221	2,834	1,107	94	108	119	120
Missouri	7,675	7,050	8.9%	5,023	4,767	2,482	2,131	138	112	32	40
Nebraska	1,277	965	32.3%	1,273	961	0	0	4	3	0	0
North Dakota	1,471	1,019	44.3%	1,461	1,009	0	0	0	0	10	10
South Dakota	1,170	1,168	0.2%	1,157	1,168	0	0	0	0	12	0
South Atlantic	385,449	359,797	7.1%	316,793	293,723	62,272	60,703	1,279	970	5,105	4,402
Delaware	4,806	5,400	-11.0%	28	25	3,650	4,567	0	0	1,128	809
District of Columbia	110	23	383.6%	0	0	0	0	110	23	0	0
Florida	182,007	171,872	5.9%	173,358	162,843	6,961	7,450	19	30	1,669	1,550
Georgia	58,620	51,972	12.8%	44,720	39,240	13,356	12,139	0	0	544	594
Maryland	14,605	13,850	5.5%	3,351	3,785	10,184	9,165	1,005	812	65	88
North Carolina	41,147	43,446	-5.3%	32,238	36,506	8,626	6,713	127	90	155	136
South Carolina	23,926	21,654	10.5%	22,793	18,921	1,002	2,604	0	0	130	128
Virginia	57,985	50,160	15.6%	39,928	32,229	17,267	17,172	17	16	773	744
West Virginia	2,243	1,420	57.9%	377	174	1,225	894	0	0	641	352
East South Central	138,274	136,296	1.5%	99,001	90,460	35,589	43,021	208	225	3,477	2,591
Alabama	57,197	58,800	-2.7%	20,447	20,266	35,191	37,234	0	0	1,560	1,300
Kentucky	15,341	14,615	5.0%	14,730	13,717	377	695	0	0	235	204
Mississippi	48,781	49,482	-1.4%	48,270	43,920	4	5,078	0	0	507	484
Tennessee	16,955	13,399	26.5%	15,555	12,557	17	14	208	225	1,175	603
West South Central	391,113	363,732	7.5%	134,611	121,869	186,221	173,564	891	861	69,390	67,437
Arkansas	21,772	20,624	5.6%	20,261	18,983	1,169	1,305	42	38	300	297
Louisiana	69,523	61,782	12.5%	37,045	32,970	4,667	3,902	164	170	27,648	24,740
Oklahoma	44,188	41,613	6.2%	28,190	25,682	15,585	15,560	0	0	413	371
Texas	255,630	239,713	6.6%	49,116	44,234	164,801	152,797	685	653	41,029	42,029
Mountain	115,932	105,259	10.1%	92,575	84,423	21,479	18,878	422	413	1,456	1,545
Arizona	46,084	37,168	24.0%	34,495	28,897	11,453	8,130	136	141	0	0
Colorado	17,097	16,398	4.3%	14,717	13,804	2,351	2,575	6	1	23	19
Idaho	4,267	3,279	30.1%	2,290	1,553	1,801	1,594	39	39	136	92
Montana	507	476	6.5%	346	342	158	131	0	0	3	4
Nevada	25,775	26,689	-3.4%	23,227	24,148	2,175	2,149	63	62	310	330
New Mexico	11,803	11,628	1.5%	8,225	7,277	3,467	4,223	106	104	4	24
Utah	9,369	8,724	7.4%	8,863	8,170	72	75	71	65	363	414
Wyoming	1,029	896	14.9%	412	233	1	1	0	0	616	662
Pacific Contiguous	122,502	118,263	3.6%	49,100	45,800	60,175	59,955	1,772	1,898	11,455	10,609
California	85,841	89,805	-4.4%	28,600	29,994	44,854	47,525	1,721	1,835	10,665	10,451
Oregon	20,932	17,923	16.8%	10,246	9,032	10,570	8,773	44	45	72	73
Washington	15,729	10,535	49.3%	10,253	6,774	4,751	3,657	7	19	718	85
Pacific Noncontiguous	2,687	2,948	-8.9%	2,619	2,883	0	0	0	0	68	65
Alaska	2,687	2,948	-8.9%	2,619	2,883	0	0	0	0	68	65
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	1,585,717	1,469,133	7.9%	784,929	720,206	692,113	645,616	8,610	8,419	100,065	94,892

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.12. Utility Scale Facility Net Generation from Other Gases by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	0	0	--	0	0	0	0	0	0	0	0
Connecticut	0	0	--	0	0	0	0	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	0	0	--	0	0	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	713	741	-3.8%	0	0	0	1	0	0	713	739
New Jersey	216	212	2.0%	0	0	0	0	0	0	216	212
New York	2	0	--	0	0	0	0	0	0	2	0
Pennsylvania	494	528	-6.4%	0	0	0	1	0	0	494	527
East North Central	4,717	4,911	-4.0%	154	151	2,174	2,077	0	0	2,390	2,683
Illinois	261	201	29.9%	0	0	0	1	0	0	261	200
Indiana	1,984	2,326	-14.7%	0	0	0	0	0	0	1,984	2,326
Michigan	1,697	1,598	6.2%	154	151	1,543	1,447	0	0	0	0
Ohio	776	787	-1.4%	0	0	631	630	0	0	145	157
Wisconsin	0	0	--	0	0	0	0	0	0	0	0
West North Central	50	51	-2.6%	0	0	0	0	0	0	50	51
Iowa	0	0	--	0	0	0	0	0	0	0	0
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	0	0	--	0	0	0	0	0	0	0	0
Missouri	0	0	--	0	0	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	50	51	-2.6%	0	0	0	0	0	0	50	51
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	236	283	-16.6%	0	0	0	0	0	0	236	283
Delaware	194	252	-23.1%	0	0	0	0	0	0	194	252
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	0	5	-97.1%	0	0	0	0	0	0	0	5
Georgia	0	0	--	0	0	0	0	0	0	0	0
Maryland	0	0	--	0	0	0	0	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	0	0	--	0	0	0	0	0	0	0	0
West Virginia	42	25	67.4%	0	0	0	0	0	0	42	25
East South Central	15	16	-6.8%	0	0	0	0	0	0	15	16
Alabama	3	5	-44.7%	0	0	0	0	0	0	3	5
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	12	11	9.5%	0	0	0	0	0	0	12	11
West South Central	4,744	5,124	-7.4%	0	0	1,699	1,413	0	0	3,045	3,711
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	1,875	2,598	-27.8%	0	0	0	0	0	0	1,875	2,598
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	2,869	2,526	13.6%	0	0	1,699	1,413	0	0	1,170	1,113
Mountain	313	397	-21.1%	0	0	10	12	0	0	303	384
Arizona	0	0	--	0	0	0	0	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	10	12	-19.2%	0	0	10	12	0	0	0	0
Nevada	0	0	--	0	0	0	0	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	17	7	159.5%	0	0	0	0	0	0	17	7
Wyoming	286	378	-24.3%	0	0	0	0	0	0	286	378
Pacific Contiguous	1,798	1,885	-4.6%	0	0	0	431	0	0	1,798	1,454
California	1,476	1,454	1.5%	0	0	0	0	0	0	1,476	1,454
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	322	431	-25.2%	0	0	0	431	0	0	322	0
Pacific Noncontiguous	6	56	-89.9%	0	0	0	0	0	0	6	56
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	6	56	-89.9%	0	0	0	0	0	0	6	56
U.S. Total	12,591	13,463	-6.5%	154	151	3,883	3,935	0	0	8,554	9,377

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.13. Utility Scale Facility Net Generation from Nuclear Energy by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
	Generation at Utility Scale Facilities			Electric Utilities		Independent Power Producers		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	29,818	31,385	-5.0%	0	0	29,818	31,385	0	0	0	0
Connecticut	16,733	16,881	-0.9%	0	0	16,733	16,881	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	2,177	4,442	-51.0%	0	0	2,177	4,442	0	0	0	0
New Hampshire	10,907	10,062	8.4%	0	0	10,907	10,062	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	154,732	158,378	-2.3%	0	0	154,732	158,378	0	0	0	0
New Jersey	26,637	31,982	-16.7%	0	0	26,637	31,982	0	0	0	0
New York	44,865	42,919	4.5%	0	0	44,865	42,919	0	0	0	0
Pennsylvania	83,230	83,477	-0.3%	0	0	83,230	83,477	0	0	0	0
East North Central	158,686	157,024	1.1%	26,044	25,023	132,642	132,002	0	0	0	0
Illinois	98,735	98,102	0.6%	0	0	98,735	98,102	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	32,909	30,479	8.0%	26,044	25,023	6,865	5,456	0	0	0	0
Ohio	17,011	18,315	-7.1%	0	0	17,011	18,315	0	0	0	0
Wisconsin	10,030	10,129	-1.0%	0	0	10,030	10,129	0	0	0	0
West North Central	44,729	44,952	-0.5%	39,494	40,057	5,236	4,895	0	0	0	0
Iowa	5,236	4,895	7.0%	0	0	5,236	4,895	0	0	0	0
Kansas	9,248	9,168	0.9%	9,248	9,168	0	0	0	0	0	0
Minnesota	14,105	14,601	-3.4%	14,105	14,601	0	0	0	0	0	0
Missouri	9,190	10,655	-13.8%	9,190	10,655	0	0	0	0	0	0
Nebraska	6,952	5,632	23.4%	6,952	5,632	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	205,228	202,708	1.2%	190,215	187,720	15,013	14,988	0	0	0	0
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	29,108	29,312	-0.7%	29,108	29,312	0	0	0	0	0	0
Georgia	33,591	34,363	-2.2%	33,591	34,363	0	0	0	0	0	0
Maryland	15,013	14,988	0.2%	0	0	15,013	14,988	0	0	0	0
North Carolina	41,916	42,077	-0.4%	41,916	42,077	0	0	0	0	0	0
South Carolina	56,103	52,716	6.4%	56,103	52,716	0	0	0	0	0	0
Virginia	29,498	29,252	0.8%	29,498	29,252	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	90,410	82,559	9.5%	90,410	82,559	0	0	0	0	0	0
Alabama	43,657	39,463	10.6%	43,657	39,463	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	11,033	6,919	59.4%	11,033	6,919	0	0	0	0	0	0
Tennessee	35,720	36,176	-1.3%	35,720	36,176	0	0	0	0	0	0
West South Central	68,854	71,059	-3.1%	27,556	29,873	41,298	41,186	0	0	0	0
Arkansas	13,575	12,721	6.7%	13,575	12,721	0	0	0	0	0	0
Louisiana	13,981	17,153	-18.5%	13,981	17,153	0	0	0	0	0	0
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	41,298	41,186	0.3%	0	0	41,298	41,186	0	0	0	0
Mountain	31,920	31,097	2.6%	31,920	31,097	0	0	0	0	0	0
Arizona	31,920	31,097	2.6%	31,920	31,097	0	0	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	0	0	--	0	0	0	0	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	0	0	--	0	0	0	0	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	25,032	27,922	-10.4%	25,032	27,922	0	0	0	0	0	0
California	16,165	18,214	-11.2%	16,165	18,214	0	0	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	8,866	9,708	-8.7%	8,866	9,708	0	0	0	0	0	0
Pacific Noncontiguous	0	0	--	0	0	0	0	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	809,409	807,084	0.3%	430,672	424,251	378,738	382,833	0	0	0	0

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Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.14. Utility Scale Facility Net Generation from Hydroelectric (Conventional) Power by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector			
	Year 2019	Year 2018	Percentage Change	Electric Utilities		Independent Power Producers		Year 2019	Year 2018	Year 2019	Year 2018		
				Generation at Utility Scale Facilities		Generation at Utility Scale Facilities						Generation at Utility Scale Facilities	
				Year 2019	Year 2018	Year 2019	Year 2018					Year 2019	Year 2018
New England	7,706	7,577	1.7%	1,068	1,078	6,520	6,380	6	4	113	114		
Connecticut	428	555	-22.9%	36	41	391	514	0	0	0	0		
Maine	3,499	3,261	7.3%	4	0	3,383	3,147	0	0	113	114		
Massachusetts	976	1,134	-13.9%	188	268	782	862	6	4	0	0		
New Hampshire	1,462	1,355	7.9%	363	371	1,099	984	0	0	0	0		
Rhode Island	4	4	-11.2%	0	0	4	4	0	0	0	0		
Vermont	1,337	1,268	5.4%	476	398	861	870	0	0	0	0		
Middle Atlantic	34,150	33,927	0.7%	25,310	25,247	8,774	8,615	6	6	59	59		
New Jersey	26	36	-25.5%	0	0	26	36	0	0	0	0		
New York	30,621	29,630	3.3%	25,215	25,105	5,340	4,460	6	6	59	59		
Pennsylvania	3,503	4,262	-17.8%	96	142	3,407	4,120	0	0	0	0		
East North Central	5,073	4,574	10.9%	4,474	4,068	475	354	1	1	124	151		
Illinois	124	147	-15.5%	42	61	81	84	1	1	0	0		
Indiana	256	223	15.0%	256	223	0	0	0	0	0	0		
Michigan	1,650	1,569	5.1%	1,526	1,441	114	119	0	0	10	10		
Ohio	403	244	65.0%	274	227	129	17	0	0	0	0		
Wisconsin	2,641	2,392	10.4%	2,377	2,116	150	135	0	0	114	141		
West North Central	16,523	13,662	20.9%	16,197	13,300	230	270	0	0	97	92		
Iowa	796	925	-13.9%	788	918	8	7	0	0	0	0		
Kansas	20	26	-22.5%	0	0	20	26	0	0	0	0		
Minnesota	1,056	1,054	0.2%	758	725	201	237	0	0	97	92		
Missouri	2,216	828	167.5%	2,216	828	0	0	0	0	0	0		
Nebraska	1,340	1,382	-3.0%	1,340	1,382	0	0	0	0	0	0		
North Dakota	3,179	3,180	0.0%	3,179	3,180	0	0	0	0	0	0		
South Dakota	7,915	6,266	26.3%	7,915	6,266	0	0	0	0	0	0		
South Atlantic	18,741	19,992	-6.3%	15,333	15,729	2,810	3,549	17	15	582	699		
Delaware	0	0	--	0	0	0	0	0	0	0	0		
District of Columbia	0	0	--	0	0	0	0	0	0	0	0		
Florida	210	233	-9.8%	210	233	0	0	0	0	0	0		
Georgia	3,956	3,697	7.0%	3,929	3,676	9	10	0	0	18	11		
Maryland	2,188	2,831	-22.7%	0	0	2,188	2,831	0	0	0	0		
North Carolina	6,186	6,605	-6.4%	6,118	6,540	53	53	14	13	0	0		
South Carolina	2,976	3,014	-1.2%	2,903	2,931	70	80	2	2	0	0		
Virginia	1,519	1,765	-13.9%	1,445	1,696	74	68	0	0	0	0		
West Virginia	1,706	1,848	-7.7%	728	653	415	507	0	0	563	688		
East South Central	25,767	25,854	-0.3%	25,758	25,843	8	11	0	0	0	0		
Alabama	11,405	11,143	2.4%	11,405	11,143	0	0	0	0	0	0		
Kentucky	4,232	4,418	-4.2%	4,223	4,407	8	11	0	0	0	0		
Mississippi	0	0	--	0	0	0	0	0	0	0	0		
Tennessee	10,130	10,293	-1.6%	10,130	10,293	0	0	0	0	0	0		
West South Central	10,879	7,350	48.0%	9,422	6,086	1,455	1,263	1	1	0	0		
Arkansas	4,135	3,009	37.4%	4,085	2,959	50	50	0	0	0	0		
Louisiana	1,366	1,180	15.7%	0	0	1,366	1,180	0	0	0	0		
Oklahoma	3,903	2,035	91.8%	3,903	2,035	0	0	0	0	0	0		
Texas	1,475	1,126	31.0%	1,434	1,092	40	33	1	1	0	0		
Mountain	32,621	35,170	-7.2%	31,332	33,878	1,276	1,279	13	13	0	0		
Arizona	6,204	6,982	-11.1%	6,204	6,982	0	0	0	0	0	0		
Colorado	1,811	1,825	-0.8%	1,578	1,601	220	212	13	13	0	0		
Idaho	10,333	11,024	-6.3%	9,517	10,177	816	847	0	0	0	0		
Montana	10,005	11,405	-12.3%	9,850	11,269	155	136	0	0	0	0		
Nevada	2,242	1,881	19.2%	2,176	1,815	66	67	0	0	0	0		
New Mexico	158	150	5.8%	158	150	0	0	0	0	0	0		
Utah	875	927	-5.6%	863	919	12	8	0	0	0	0		
Wyoming	992	976	1.7%	985	967	8	9	0	0	0	0		
Pacific Contiguous	134,695	142,657	-5.6%	131,966	140,598	2,716	2,048	14	11	0	0		
California	38,355	26,331	45.7%	36,219	24,915	2,122	1,405	14	11	0	0		
Oregon	30,322	35,443	-14.4%	30,069	35,199	253	243	0	0	0	0		
Washington	66,018	80,883	-18.4%	65,677	80,483	341	400	0	0	0	0		
Pacific Noncontiguous	1,718	1,761	-2.4%	1,504	1,508	24	42	130	176	59	34		
Alaska	1,623	1,664	-2.5%	1,493	1,489	0	0	130	176	0	0		
Hawaii	95	97	-2.0%	11	20	24	42	0	0	59	34		
U.S. Total	287,874	292,524	-1.6%	262,364	267,336	24,288	23,812	188	227	1,033	1,149		

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells. NM = Not meaningful due to large relative standard error or excessive percentage change.

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Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.15. Utility Scale Facility Net Generation from Renewable Sources Excluding Hydroelectric by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	11,095	11,398	-2.7%	830	787	8,935	9,322	155	179	1,175	1,110
Connecticut	900	873	3.0%	3	3	892	869	5	1	0	0
Maine	4,749	5,058	-6.1%	0	0	3,536	3,885	45	68	1,169	1,105
Massachusetts	2,379	2,369	0.4%	120	77	2,197	2,232	55	55	6	5
New Hampshire	1,647	1,793	-8.1%	214	253	1,393	1,495	40	45	0	0
Rhode Island	469	399	17.6%	0	0	461	391	8	7	0	0
Vermont	951	906	4.9%	493	454	456	450	2	2	0	0
Middle Atlantic	14,231	14,280	-0.3%	79	76	12,939	12,865	642	644	570	694
New Jersey	1,984	1,948	1.8%	79	76	1,608	1,588	289	279	7	5
New York	6,926	6,438	7.6%	0	0	6,528	6,037	210	220	188	180
Pennsylvania	5,322	5,894	-9.7%	0	0	4,803	5,240	143	145	375	509
East North Central	36,336	32,376	12.2%	4,628	3,896	30,040	26,619	175	242	1,493	1,618
Illinois	14,934	12,391	20.5%	128	105	14,798	12,279	8	8	0	0
Indiana	7,001	6,188	13.1%	469	427	6,447	5,670	21	22	64	69
Michigan	8,283	8,106	2.2%	2,399	2,115	5,223	5,176	56	129	604	685
Ohio	2,870	2,576	11.4%	18	19	2,536	2,264	16	13	300	280
Wisconsin	3,248	3,114	4.3%	1,614	1,231	1,035	1,231	74	69	526	583
West North Central	84,569	76,235	10.9%	27,618	24,768	56,047	50,564	177	187	726	716
Iowa	25,560	21,557	18.6%	17,673	14,857	7,787	6,619	41	47	59	35
Kansas	21,198	18,979	11.7%	1,896	1,902	19,285	17,065	17	16	0	-3
Minnesota	13,402	13,400	0.0%	2,610	2,751	10,066	9,915	61	54	664	680
Missouri	3,078	3,059	0.6%	41	37	2,990	2,967	45	53	2	3
Nebraska	7,327	5,670	29.2%	400	247	6,914	5,407	13	15	0	0
North Dakota	11,213	10,734	4.5%	4,317	4,127	6,896	6,604	0	NM	0	1
South Dakota	2,791	2,837	-1.6%	682	849	2,109	1,988	0	0	0	0
South Atlantic	37,353	34,921	7.0%	6,213	5,108	20,550	18,830	459	495	10,131	10,488
Delaware	120	114	5.6%	7	6	98	90	6	6	10	12
District of Columbia	64	57	13.1%	0	0	9	0	55	57	0	0
Florida	8,351	7,497	11.4%	4,065	2,680	2,365	2,824	50	51	1,870	1,942
Georgia	7,536	6,994	7.8%	312	293	3,052	2,583	3	2	4,169	4,116
Maryland	1,405	1,488	-5.6%	9	8	1,315	1,360	33	27	49	93
North Carolina	10,524	9,263	13.6%	450	387	8,727	7,429	168	188	1,179	1,259
South Carolina	3,027	2,802	8.0%	90	385	1,543	905	0	0	1,393	1,512
Virginia	4,696	4,936	-4.9%	1,280	1,348	1,810	1,869	144	164	1,461	1,554
West Virginia	1,631	1,770	-7.8%	0	0	1,631	1,770	0	0	0	0
East South Central	7,162	7,230	-0.9%	155	163	1,180	1,129	5	4	5,822	5,933
Alabama	3,742	3,804	-1.6%	23	31	402	507	0	0	3,317	3,266
Kentucky	419	470	-10.8%	132	131	11	10	0	0	276	329
Mississippi	1,718	1,765	-2.7%	0	0	335	338	0	0	1,382	1,427
Tennessee	1,283	1,191	7.7%	0	1	431	274	5	4	847	911
West South Central	122,620	112,403	9.1%	1,815	1,701	116,043	105,502	82	94	4,680	5,106
Arkansas	1,545	1,569	-1.5%	2	2	288	271	14	6	1,242	1,291
Louisiana	2,250	2,609	-13.8%	2	2	83	79	0	0	2,165	2,528
Oklahoma	29,378	27,729	5.9%	1,475	1,401	27,613	26,022	0	0	291	307
Texas	89,447	80,496	11.1%	337	297	88,058	79,130	68	88	983	980
Mountain	49,611	46,478	6.7%	5,912	4,213	42,739	41,742	576	150	383	373
Arizona	6,063	5,890	2.9%	741	681	5,306	5,196	16	13	0	0
Colorado	12,233	10,972	11.5%	2,288	513	9,925	10,443	17	13	3	3
Idaho	3,721	3,785	-1.7%	178	174	3,160	3,253	25	11	358	346
Montana	2,423	2,209	9.7%	250	242	2,153	1,945	0	0	20	21
Nevada	9,103	8,546	6.5%	170	41	8,424	8,406	506	97	2	3
New Mexico	8,339	7,474	11.6%	317	264	8,019	7,208	3	3	0	0
Utah	3,386	3,543	-4.4%	115	223	3,262	3,307	9	14	0	0
Wyoming	4,343	4,058	7.0%	1,853	2,074	2,490	1,984	0	0	0	0
Pacific Contiguous	75,577	77,570	-2.6%	6,775	8,197	65,488	65,952	934	975	2,380	2,446
California	58,921	58,632	0.5%	1,967	2,249	55,307	54,786	892	933	756	665
Oregon	8,392	9,233	-9.1%	1,148	1,308	6,719	7,359	27	29	499	536
Washington	8,263	9,705	-14.9%	3,660	4,641	3,462	3,807	15	13	1,126	1,245
Pacific Noncontiguous	1,269	1,403	-9.5%	186	190	862	966	220	244	1	3
Alaska	180	200	-10.2%	89	99	53	56	37	43	1	3
Hawaii	1,089	1,202	-9.4%	97	91	809	910	183	201	0	0
U.S. Total	439,823	414,292	6.2%	54,212	49,100	354,823	333,491	3,426	3,214	27,361	28,487

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.16. Utility Scale Facility Net Generation from Hydroelectric (Pumped Storage) Power by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	-434	-460	-5.7%	0	0	-434	-460	0	0	0	0
Connecticut	2	3	-37.9%	0	0	2	3	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	-436	-464	-5.9%	0	0	-436	-464	0	0	0	0
New Hampshire	0	0	--	0	0	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	-975	-1,205	-19.1%	-409	-546	-566	-659	0	0	0	0
New Jersey	-94	-115	-18.5%	-94	-115	0	0	0	0	0	0
New York	-316	-431	-26.7%	-316	-431	0	0	0	0	0	0
Pennsylvania	-566	-659	-14.2%	0	0	-566	-659	0	0	0	0
East North Central	-696	-698	-0.3%	-696	-698	0	0	0	0	0	0
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	-696	-698	-0.3%	-696	-698	0	0	0	0	0	0
Ohio	0	0	--	0	0	0	0	0	0	0	0
Wisconsin	0	0	--	0	0	0	0	0	0	0	0
West North Central	337	47	617.9%	337	47	0	0	0	0	0	0
Iowa	0	0	--	0	0	0	0	0	0	0	0
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	0	0	--	0	0	0	0	0	0	0	0
Missouri	337	47	617.9%	337	47	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	-2,612	-2,485	5.1%	-2,612	-2,485	0	0	0	0	0	0
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	0	0	--	0	0	0	0	0	0	0	0
Georgia	-599	-489	22.5%	-599	-489	0	0	0	0	0	0
Maryland	0	0	--	0	0	0	0	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	-909	-705	28.9%	-909	-705	0	0	0	0	0	0
Virginia	-1,104	-1,292	-14.5%	-1,104	-1,292	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	-615	-620	-0.7%	-615	-620	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	-615	-620	-0.7%	-615	-620	0	0	0	0	0	0
West South Central	-53	-95	-43.7%	-53	-95	0	0	0	0	0	0
Arkansas	51	40	26.0%	51	40	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	-104	-135	-22.9%	-104	-135	0	0	0	0	0	0
Texas	0	0	--	0	0	0	0	0	0	0	0
Mountain	-189	-267	-29.1%	-189	-267	0	0	0	0	0	0
Arizona	2	-5	-154.6%	2	-5	0	0	0	0	0	0
Colorado	-192	-263	-27.0%	-192	-263	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	0	0	--	0	0	0	0	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	0	0	--	0	0	0	0	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	-22	-120	-81.7%	-22	-120	0	0	0	0	0	0
California	-31	-149	-79.4%	-31	-149	0	0	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	9	28	-69.8%	9	28	0	0	0	0	0	0
Pacific Noncontiguous	0	0	--	0	0	0	0	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	-5,261	-5,905	-10.9%	-4,261	-4,785	-1,000	-1,119	0	0	0	0

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells. NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.17. Utility Scale Facility Net Generation from Other Energy Sources by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	1,881	1,729	8.8%	-1	-1	1,707	1,531	54	65	121	134
Connecticut	578	465	24.4%	0	0	578	465	0	0	0	0
Maine	339	371	-8.6%	0	0	162	172	54	65	122	134
Massachusetts	910	846	7.5%	0	0	912	847	0	0	-2	0
New Hampshire	55	48	14.6%	0	0	55	48	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	-1	0	226.7%	-1	0	0	0	0	0	0	0
Middle Atlantic	2,433	2,206	10.3%	0	0	1,861	1,750	512	431	60	25
New Jersey	616	552	11.6%	0	0	394	391	162	136	60	25
New York	960	873	9.9%	0	0	720	671	240	202	0	0
Pennsylvania	857	781	9.8%	0	0	748	688	110	93	0	0
East North Central	795	848	-6.2%	19	14	71	89	91	143	614	601
Illinois	239	227	5.1%	0	0	-10	-19	0	0	249	246
Indiana	333	321	4.0%	0	0	0	0	24	21	310	300
Michigan	173	252	-31.4%	0	0	85	112	67	122	21	18
Ohio	8	5	50.4%	-2	-3	-3	-4	0	0	14	12
Wisconsin	42	43	-1.4%	21	17	0	0	0	0	21	26
West North Central	409	463	-11.6%	184	236	141	141	31	29	53	57
Iowa	0	0	--	0	0	0	0	0	0	0	0
Kansas	5	5	-0.3%	0	0	0	0	0	0	5	5
Minnesota	355	405	-12.4%	135	183	141	141	31	29	48	52
Missouri	0	1	-91.2%	0	1	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	50	52	-4.6%	50	52	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	4,711	4,432	6.3%	-2	-1	2,706	2,469	163	149	1,844	1,815
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	3,154	2,983	5.7%	-2	0	1,656	1,523	0	0	1,500	1,461
Georgia	94	86	9.3%	0	0	0	0	0	0	94	86
Maryland	329	326	0.7%	0	0	329	326	0	0	0	0
North Carolina	538	535	0.5%	0	0	325	302	0	0	213	233
South Carolina	45	42	7.1%	0	0	8	7	0	0	37	34
Virginia	558	471	18.5%	0	0	395	323	163	149	0	0
West Virginia	-6	-12	-44.5%	0	0	-6	-11	0	0	0	0
East South Central	58	72	-20.0%	47	64	0	0	0	0	10	8
Alabama	0	0	14.3%	0	0	0	0	0	0	0	0
Kentucky	47	64	-25.4%	47	64	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	10	8	20.3%	0	0	0	0	0	0	10	8
West South Central	1,096	1,158	-5.4%	85	0	85	122	0	0	926	1,036
Arkansas	5	5	-4.9%	0	0	0	0	0	0	5	5
Louisiana	573	643	-10.9%	85	0	0	0	0	0	488	643
Oklahoma	7	57	-87.0%	1	0	0	54	0	0	7	3
Texas	510	453	12.8%	0	0	85	69	0	0	426	384
Mountain	694	764	-9.2%	69	81	301	320	0	0	324	363
Arizona	-4	-3	75.2%	0	0	-4	-3	0	0	0	0
Colorado	60	59	1.9%	-1	0	18	18	0	0	43	42
Idaho	66	64	2.6%	0	0	0	0	0	0	66	64
Montana	287	305	-5.7%	0	0	287	305	0	0	0	0
Nevada	22	29	-25.2%	22	29	0	0	0	0	0	0
New Mexico	-1	-1	9.4%	-1	-1	0	0	0	0	0	0
Utah	189	225	-16.2%	49	53	0	0	0	0	140	172
Wyoming	75	85	-11.5%	0	0	0	0	0	0	75	85
Pacific Contiguous	867	922	-6.0%	-17	-19	269	255	0	0	615	686
California	765	829	-7.7%	-16	-17	166	160	0	0	615	686
Oregon	36	34	4.9%	-1	-1	36	35	0	0	0	0
Washington	66	59	11.7%	0	-1	67	60	0	0	0	0
Pacific Noncontiguous	391	379	3.1%	167	187	0	-1	224	193	0	0
Alaska	-4	-3	25.9%	-4	-3	0	0	0	0	0	0
Hawaii	395	382	3.3%	171	190	0	-1	224	193	0	0
U.S. Total	13,334	12,973	2.8%	551	561	7,141	6,677	1,076	1,010	4,567	4,725

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Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.18. Utility Scale Facility Net Generation from Wind by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
	Generation at Utility Scale Facilities			Electric Utilities		Independent Power Producers		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	3,734	3,556	5.0%	220	230	3,480	3,294	31	29	2	3
Connecticut	12	12	-0.7%	0	0	12	12	0	0	0	0
Maine	2,494	2,384	4.6%	0	0	2,494	2,384	0	0	0	0
Massachusetts	211	221	-4.6%	49	58	136	139	24	22	2	3
New Hampshire	433	407	6.6%	0	0	433	407	0	0	0	0
Rhode Island	206	159	30.0%	0	0	199	151	8	7	0	0
Vermont	377	373	1.1%	171	173	207	201	0	0	0	0
Middle Atlantic	7,728	7,588	1.9%	0	0	7,724	7,579	3	3	1	6
New Jersey	22	23	-2.7%	0	0	22	23	0	0	0	0
New York	4,456	3,998	11.4%	0	0	4,452	3,989	3	3	1	6
Pennsylvania	3,250	3,567	-8.9%	0	0	3,250	3,567	0	0	0	0
East North Central	30,422	26,181	16.2%	3,607	2,930	26,706	23,154	30	28	79	70
Illinois	14,460	11,899	21.5%	12	12	14,443	11,882	5	5	0	0
Indiana	6,216	5,437	14.3%	0	0	6,216	5,437	0	0	0	0
Michigan	5,826	5,457	6.7%	2,313	2,029	3,513	3,429	0	0	0	0
Ohio	2,043	1,750	16.7%	11	11	1,956	1,673	3	3	72	63
Wisconsin	1,878	1,638	14.7%	1,270	878	579	733	21	20	7	7
West North Central	81,489	72,907	11.8%	27,319	24,282	54,124	48,578	45	47	0	0
Iowa	25,329	21,334	18.7%	17,652	14,834	7,673	6,497	4	3	0	0
Kansas	21,124	18,908	11.7%	1,894	1,900	19,212	16,992	17	16	0	0
Minnesota	10,965	10,714	2.3%	2,450	2,405	8,490	8,284	25	25	0	0
Missouri	2,858	2,835	0.8%	0	0	2,858	2,835	0	0	0	0
Nebraska	7,211	5,549	30.0%	324	169	6,887	5,380	0	0	0	0
North Dakota	11,213	10,733	4.5%	4,317	4,127	6,896	6,604	0	NM	0	0
South Dakota	2,789	2,835	-1.6%	682	849	2,107	1,986	0	0	0	0
South Atlantic	2,680	2,888	-7.2%	0	0	2,675	2,883	5	5	0	0
Delaware	5	5	1.2%	0	0	0	0	5	5	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	0	0	--	0	0	0	0	0	0	0	0
Georgia	0	0	--	0	0	0	0	0	0	0	0
Maryland	520	570	-8.7%	0	0	520	570	0	0	0	0
North Carolina	523	543	-3.6%	0	0	523	543	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	0	0	--	0	0	0	0	0	0	0	0
West Virginia	1,631	1,770	-7.8%	0	0	1,631	1,770	0	0	0	0
East South Central	38	41	-7.4%	0	0	38	41	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	38	41	-7.4%	0	0	38	41	0	0	0	0
West South Central	112,629	103,039	9.3%	1,671	1,628	110,895	101,348	54	53	9	10
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	29,008	27,338	6.1%	1,415	1,339	27,593	25,999	0	0	0	0
Texas	83,620	75,700	10.5%	256	289	83,302	75,349	54	53	9	10
Mountain	28,534	26,339	8.3%	4,548	2,984	23,979	23,349	4	3	3	3
Arizona	554	530	4.6%	0	0	554	530	0	0	0	0
Colorado	10,852	9,745	11.4%	2,282	508	8,566	9,234	2	0	3	3
Idaho	2,551	2,655	-3.9%	163	160	2,388	2,495	0	0	0	0
Montana	2,373	2,153	10.2%	250	242	2,124	1,911	0	0	0	0
Nevada	329	312	5.5%	0	0	329	312	0	0	0	0
New Mexico	6,892	6,092	13.1%	0	0	6,889	6,089	3	3	0	0
Utah	819	795	3.0%	0	0	819	795	0	0	0	0
Wyoming	4,163	4,057	2.6%	1,853	2,074	2,309	1,983	0	0	0	0
Pacific Contiguous	26,981	29,371	-8.1%	5,206	6,313	21,765	23,048	6	6	5	5
California	13,735	14,024	-2.1%	780	850	12,944	13,163	6	6	5	5
Oregon	6,569	7,447	-11.8%	1,081	1,244	5,488	6,204	0	0	0	0
Washington	6,677	7,900	-15.5%	3,344	4,219	3,333	3,681	0	0	0	0
Pacific Noncontiguous	672	757	-11.2%	89	99	583	658	0	0	0	0
Alaska	143	155	-8.0%	89	99	53	56	0	0	0	0
Hawaii	529	602	-12.1%	0	0	529	602	0	0	0	0
U.S. Total	294,906	272,667	8.2%	42,660	38,466	251,968	233,931	179	174	100	97

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.19. Utility Scale Facility Net Generation from Biomass by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	5,850	6,610	-11.5%	496	498	4,072	4,862	113	146	1,169	1,105
Connecticut	749	756	-0.8%	0	0	749	756	0	0	0	0
Maine	2,248	2,662	-15.5%	0	0	1,035	1,489	45	68	1,169	1,105
Massachusetts	1,004	1,169	-14.1%	0	0	978	1,139	26	30	0	0
New Hampshire	1,214	1,386	-12.4%	214	253	960	1,088	40	45	0	0
Rhode Island	208	211	-1.5%	0	0	208	211	0	0	0	0
Vermont	426	426	0.0%	282	245	142	179	2	2	0	0
Middle Atlantic	4,732	5,342	-11.4%	0	0	3,702	4,157	482	509	547	676
New Jersey	797	935	-14.8%	0	0	650	780	147	155	0	0
New York	1,946	2,142	-9.1%	0	0	1,569	1,754	197	213	180	174
Pennsylvania	1,988	2,265	-12.2%	0	0	1,482	1,623	139	140	367	501
East North Central	5,207	5,561	-6.4%	787	763	2,875	3,051	133	201	1,412	1,546
Illinois	412	426	-3.3%	114	90	299	336	0	0	0	0
Indiana	463	460	0.6%	330	320	49	49	20	22	64	69
Michigan	2,314	2,531	-8.6%	0	0	1,655	1,718	55	127	604	685
Ohio	685	707	-3.1%	0	0	452	484	8	7	226	216
Wisconsin	1,333	1,437	-7.3%	343	352	420	463	51	45	518	577
West North Central	1,671	2,147	-22.1%	271	470	543	823	131	138	726	716
Iowa	216	211	2.1%	12	16	107	117	37	43	59	35
Kansas	63	64	-1.3%	0	0	63	67	0	0	0	-3
Minnesota	1,188	1,645	-27.8%	158	343	330	592	36	29	664	680
Missouri	120	133	-9.6%	30	32	44	47	44	51	2	3
Nebraska	85	93	-9.4%	71	78	0	0	13	15	0	0
North Dakota	0	1	-82.2%	0	0	0	0	0	0	0	1
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	18,795	19,794	-5.0%	1,772	2,244	6,586	6,706	312	358	10,124	10,486
Delaware	61	59	3.9%	0	0	52	47	0	0	10	12
District of Columbia	55	57	-2.5%	0	0	0	0	55	57	0	0
Florida	4,449	5,084	-12.5%	670	654	1,872	2,446	40	45	1,867	1,939
Georgia	5,376	4,999	7.5%	0	0	1,206	882	0	0	4,169	4,116
Maryland	391	521	-25.1%	0	0	326	412	15	17	49	93
North Carolina	2,549	2,610	-2.3%	0	0	1,312	1,275	59	76	1,179	1,259
South Carolina	2,168	2,291	-5.4%	86	383	692	397	0	0	1,390	1,512
Virginia	3,746	4,173	-10.2%	1,016	1,207	1,126	1,248	143	164	1,461	1,554
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	6,045	6,299	-4.0%	88	93	141	278	0	0	5,816	5,927
Alabama	3,357	3,446	-2.6%	0	0	40	180	0	0	3,317	3,266
Kentucky	374	431	-13.1%	88	93	10	8	0	0	276	329
Mississippi	1,395	1,439	-3.1%	0	0	13	13	0	0	1,382	1,427
Tennessee	919	982	-6.5%	0	0	78	77	0	0	840	905
West South Central	5,354	5,892	-9.1%	72	0	596	757	16	39	4,671	5,096
Arkansas	1,335	1,366	-2.3%	0	0	88	69	5	6	1,242	1,291
Louisiana	2,248	2,607	-13.8%	0	0	83	79	0	0	2,165	2,528
Oklahoma	311	329	-5.6%	0	0	20	23	0	0	291	307
Texas	1,461	1,590	-8.1%	72	0	405	586	11	33	974	970
Mountain	1,078	1,049	2.7%	15	15	652	643	34	25	376	367
Arizona	231	219	5.1%	0	0	231	219	0	0	0	0
Colorado	162	164	-1.5%	0	0	162	164	0	0	0	0
Idaho	518	491	5.5%	15	15	121	119	25	11	356	346
Montana	20	21	-5.6%	0	0	0	0	0	0	20	21
Nevada	54	53	2.3%	0	0	54	53	0	0	0	0
New Mexico	23	21	6.7%	0	0	23	21	0	0	0	0
Utah	71	79	-11.0%	0	0	62	66	9	14	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	8,445	8,787	-3.9%	437	573	4,896	4,972	777	821	2,335	2,422
California	5,941	5,946	-0.1%	60	93	4,435	4,434	735	779	710	640
Oregon	962	1,037	-7.3%	61	59	375	413	27	29	499	536
Washington	1,542	1,803	-14.5%	316	421	86	124	15	13	1,126	1,245
Pacific Noncontiguous	329	351	-6.2%	57	53	51	51	220	244	1	3
Alaska	38	45	-17.4%	0	0	0	0	37	43	1	3
Hawaii	292	306	-4.6%	57	53	51	51	183	201	0	0
U.S. Total	57,507	61,832	-7.0%	3,997	4,708	24,115	26,300	2,219	2,481	27,176	28,343

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Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.20. Utility Scale Facility Net Generation from Geothermal by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	0	0	--	0	0	0	0	0	0	0	0
Connecticut	0	0	--	0	0	0	0	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	0	0	--	0	0	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	--	0	0	0	0	0	0	0	0
New Jersey	0	0	--	0	0	0	0	0	0	0	0
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	0	0	--	0	0	0	0	0	0	0	0
East North Central	0	0	--	0	0	0	0	0	0	0	0
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	0	0	--	0	0	0	0	0	0	0	0
Ohio	0	0	--	0	0	0	0	0	0	0	0
Wisconsin	0	0	--	0	0	0	0	0	0	0	0
West North Central	0	0	--	0	0	0	0	0	0	0	0
Iowa	0	0	--	0	0	0	0	0	0	0	0
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	0	0	--	0	0	0	0	0	0	0	0
Missouri	0	0	--	0	0	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	0	0	--	0	0	0	0	0	0	0	0
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	0	0	--	0	0	0	0	0	0	0	0
Georgia	0	0	--	0	0	0	0	0	0	0	0
Maryland	0	0	--	0	0	0	0	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	0	0	--	0	0	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	0	0	--	0	0	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	0	0	--	0	0	0	0	0	0	0	0
West South Central	0	0	--	0	0	0	0	0	0	0	0
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	0	0	--	0	0	0	0	0	0	0	0
Mountain	4,373	4,004	9.2%	115	223	3,816	3,747	442	33	0	0
Arizona	0	0	--	0	0	0	0	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	96	83	15.0%	0	0	96	83	0	0	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	3,909	3,462	12.9%	0	0	3,467	3,429	442	33	0	0
New Mexico	58	13	342.2%	0	0	58	13	0	0	0	0
Utah	310	446	-30.4%	115	223	195	223	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	11,100	11,853	-6.4%	656	786	10,444	11,067	0	0	0	0
California	10,914	11,677	-6.5%	656	786	10,258	10,891	0	0	0	0
Oregon	185	176	5.2%	0	0	185	176	0	0	0	0
Washington	0	0	--	0	0	0	0	0	0	0	0
Pacific Noncontiguous	0	110	-100.0%	0	0	0	110	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	0	110	-100.0%	0	0	0	110	0	0	0	0
U.S. Total	15,473	15,967	-3.1%	771	1,009	14,260	14,924	442	33	0	0

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Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.21. Net Generation from Solar Photovoltaic by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors							Electric Power Sector				Commercial Sector				Industrial Sector				Residential Sector					
	Estimated Generation From Utility and Small Scale Facilities			Generation at Utility Scale Facilities		Estimated Small Scale Generation		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Estimated Generation From Utility and Small Scale Facilities		Generation at Utility Scale Facilities		Estimated Generation From Utility and Small Scale Facilities		Generation at Utility Scale Facilities		Estimated Small Scale Generation		Estimated Small Scale Generation			
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018		
New England	4,767	4,204	13.4%	1,511	1,232	3,255	2,972	114	59	1,382	1,167	1,751	1,629	11	4	1,740	1,626	135	118	5	2	130	116	1,385	1,231
Connecticut	738	605	22.0%	138	106	600	500	3	3	130	101	226	200	5	1	221	199	30	25	0	0	30	25	349	276
Maine	84	68	24.1%	7	12	77	55	0	0	7	12	32	19	0	0	32	19	0	0	0	0	0	0	45	36
Massachusetts	3,280	3,062	7.1%	1,164	978	2,116	2,083	71	19	1,083	954	1,273	1,280	6	3	1,267	1,277	95	84	4	2	90	82	759	724
New Hampshire	130	108	20.2%	0	0	130	108	0	0	0	0	41	32	0	0	41	32	8	7	0	0	8	7	81	69
Rhode Island	235	124	88.9%	55	29	180	95	0	0	55	29	122	51	0	0	122	51	0	0	0	0	0	0	58	44
Vermont	300	237	26.6%	147	107	153	130	40	37	108	70	57	47	0	0	57	47	2	2	0	0	2	2	94	81
Middle Atlantic	6,308	5,176	21.9%	1,771	1,350	4,537	3,825	79	76	1,513	1,129	2,138	1,853	157	132	1,981	1,721	258	214	22	12	236	202	2,320	1,903
New Jersey	3,357	2,903	15.7%	1,165	990	2,193	1,912	79	76	936	785	1,163	1,083	142	124	1,021	959	164	131	7	5	156	126	1,015	827
New York	2,376	1,794	32.4%	524	297	1,852	1,497	0	0	507	294	806	616	10	4	796	612	23	17	6	0	17	17	1,039	868
Pennsylvania	575	479	20.1%	83	62	492	416	0	0	70	50	169	155	4	5	164	150	70	66	8	7	63	59	265	207
East North Central	1,428	1,134	25.9%	707	634	721	501	234	204	459	415	397	326	12	13	385	312	49	28	2	2	47	26	289	162
Illinois	251	161	55.3%	62	66	189	95	2	2	57	60	108	65	3	3	105	61	0	1	0	0	0	1	84	34
Indiana	450	389	15.7%	323	291	128	98	138	107	183	184	73	66	2	0	71	66	3	3	0	0	3	3	54	29
Michigan	253	197	28.0%	143	118	110	79	87	87	55	29	54	45	1	2	52	43	3	2	0	0	3	2	54	34
Ohio	336	272	23.4%	142	119	194	153	7	7	129	107	121	116	4	3	117	113	26	9	2	2	24	7	53	34
Wisconsin	139	115	21.4%	38	40	101	75	0	0	36	35	41	35	2	5	39	30	17	14	0	0	17	14	45	32
West North Central	2,022	1,660	21.8%	1,408	1,181	613	478	28	16	1,379	1,164	290	235	1	2	289	233	24	18	0	0	24	18	301	227
Iowa	176	138	27.8%	15	11	160	126	8	7	7	5	99	80	0	0	99	80	5	4	0	0	5	4	56	43
Kansas	50	35	42.8%	11	8	38	27	2	2	9	6	15	10	0	0	15	10	0	0	0	0	0	0	23	17
Minnesota	1,353	1,123	20.5%	1,249	1,042	104	81	3	3	1,246	1,039	35	28	0	0	35	28	12	10	0	0	12	10	58	43
Missouri	393	324	21.5%	100	91	293	232	11	5	88	85	135	112	1	2	134	111	6	4	0	0	6	4	153	118
Nebraska	46	38	22.6%	31	27	15	11	5	0	27	27	5	4	0	0	5	4	1	1	0	0	1	1	9	6
North Dakota	1	0	92.8%	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Dakota	3	3	16.0%	2	2	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1
South Atlantic	18,775	14,469	29.8%	15,850	12,187	2,925	2,282	4,413	2,812	11,289	9,241	905	788	142	131	763	657	341	307	7	2	334	305	1,828	1,320
Delaware	178	160	11.8%	54	50	124	110	7	6	47	43	35	32	0	1	35	32	8	9	0	0	8	9	81	69
District of Columbia	103	71	44.7%	9	0	94	71	0	0	9	0	50	43	0	0	50	43	0	0	0	0	0	0	44	29
Florida	4,562	2,790	63.5%	3,873	2,361	689	429	3,368	1,974	493	378	145	116	10	6	135	110	13	13	3	2	10	11	544	308
Georgia	2,467	2,265	8.9%	2,161	1,996	307	270	312	293	1,846	1,701	45	37	3	2	42	35	244	218	0	0	244	218	20	17
Maryland	1,460	1,246	17.2%	494	397	965	849	9	8	468	378	275	242	17	11	258	232	36	37	0	0	36	37	672	580
North Carolina	7,725	6,323	22.2%	7,451	6,110	273	212	450	387	6,892	5,611	233	228	109	112	123	117	7	7	0	0	7	7	143	89
South Carolina	1,187	759	56.3%	859	510	329	249	4	2	851	508	79	64	0	0	79	64	30	22	4	0	27	22	222	163
Virginia	1,081	845	27.8%	949	763	132	82	264	141	683	622	38	23	2	0	37	23	2	2	0	0	2	2	93	58
West Virginia	12	10	29.6%	0	0	12	10	0	0	0	0	4	2	0	0	4	2	0	0	0	0	0	0	8	7
East South Central	1,240	1,034	19.9%	1,079	890	162	144	67	69	1,001	810	111	103	5	4	107	98	9	8	6	6	3	2	52	44
Alabama	399	368	8.4%	385	357	14	11	23	31	362	327	10	7	0	0	10	7	1	1	0	0	1	1	3	3
Kentucky	85	71	19.3%	45	39	40	32	43	38	2	2	22	19	0	0	22	19	1	1	0	0	1	1	17	12
Mississippi	336	337	-0.2%	322	326	14	11	0	0	322	326	8	7	0	0	8	7	1	0	0	0	1	0	6	4
Tennessee	420	258	62.8%	326	168	94	90	0	1	315	156	72	70	5	4	67	65	6	6	6	6	0	0	27	25
West South Central	5,933	4,449	33.3%	4,637	3,472	1,297	977	73	73	4,552	3,397	287	215	12	2	274	213	6	2	0	0	6	2	1,016	762
Arkansas	246	225	9.1%	210	203	35	22	2	2	200	202	19	8	9	0	11	8	3	1	0	0	3	1	21	13
Louisiana	242	230	5.2%	2	2	241	229	2	2	0	0	16	15	0	0	16	15	0	0	0	0	0	0	224	214
Oklahoma	79	73	8.8%	60	62	20	11	60	62	0	0	5	4	0	0	5	4	1	0	0	0	1	0	14	7
Texas	5,366	3,921	36.8%	4,365	3,206	1,001	716	10	8	4,352	3,195	246	189	3	2	243	187	2	1	0	0	2	1	756	528
Mountain	19,411	18,058	7.5%	14,673	14,003	4,738	4,055	1,234	991	13,340	12,920	1,378	1,322	96	89	1,282	1,233	72	71	4	3	68	69	3,388	2,754
Arizona	7,058	6,630	6.5%	4,486	4,364	2,572	2,265	741	681	3,729	3,670	776	744	16	13	760	731	14	24	0	0	14	24	1,798	1,511
Colorado	1,852	1,653	12.0%	1,218	1,062	633	590	5	5	1,198	1,045	236	235	15	12	220	222	2	2	0	0	2	2	411	366
Idaho	615	589	4.4%	557	556	58	33	0	0	555	556	6	5	0	0	6	5	4	1	1	0	3	1	50	27
Montana	54	54	0.5%	29	34	24	20	0	0	29	34	7	6	0	0	7	6	0	0	0	0	0	0	17	14
Nevada	5,331	4,909	8.6%	4,650	4,413	680	496	170	41	4,413	4,306	175	171	64	64	111	107	40	35	2	3	38	32	532	357
New Mexico	1,667	1,599	4.2%	1,366	1,349	301	250	317	264	1,049	1,085	88	81	0	0	88	81	1	1	0	0	1	1	212	168
Utah	2,646	2,618	1.1%	2,186	2,224	460	394	0	0	2,186	2,224	88	79	0											

Table 3.22. Utility Scale Facility Net Generation from Solar Thermal by State, by Sector, 2019 and 2018 (Thousand Megawatthours)

Census Division and State	All Sectors			Electric Power Sector				Commercial Sector		Industrial Sector	
				Electric Utilities		Independent Power Producers					
	Generation at Utility Scale Facilities			Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities		Generation at Utility Scale Facilities	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	0	0	--	0	0	0	0	0	0	0	0
Connecticut	0	0	--	0	0	0	0	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	0	0	--	0	0	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	--	0	0	0	0	0	0	0	0
New Jersey	0	0	--	0	0	0	0	0	0	0	0
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	0	0	--	0	0	0	0	0	0	0	0
East North Central	0	0	--	0	0	0	0	0	0	0	0
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	0	0	--	0	0	0	0	0	0	0	0
Ohio	0	0	--	0	0	0	0	0	0	0	0
Wisconsin	0	0	--	0	0	0	0	0	0	0	0
West North Central	0	0	--	0	0	0	0	0	0	0	0
Iowa	0	0	--	0	0	0	0	0	0	0	0
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	0	0	--	0	0	0	0	0	0	0	0
Missouri	0	0	--	0	0	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	28	51	-45.6%	28	51	0	0	0	0	0	0
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	28	51	-45.6%	28	51	0	0	0	0	0	0
Georgia	0	0	--	0	0	0	0	0	0	0	0
Maryland	0	0	--	0	0	0	0	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	0	0	--	0	0	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	0	0	--	0	0	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	0	0	--	0	0	0	0	0	0	0	0
West South Central	0	0	--	0	0	0	0	0	0	0	0
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	0	0	--	0	0	0	0	0	0	0	0
Mountain	952	1,082	-12.0%	0	0	952	1,082	0	0	0	0
Arizona	792	776	2.0%	0	0	792	776	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	160	306	-47.6%	0	0	160	306	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	0	0	--	0	0	0	0	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	2,237	2,458	-9.0%	0	0	2,237	2,458	0	0	0	0
California	2,237	2,458	-9.0%	0	0	2,237	2,458	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	0	0	--	0	0	0	0	0	0	0	0
Pacific Noncontiguous	0	0	--	0	0	0	0	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	3,218	3,592	-10.4%	28	51	3,190	3,540	0	0	0	0

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 3.23. Useful Thermal Output by Energy Source: Total Combined Heat and Power (All Sectors), 2009 - 2019
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2009	281,557	32,591	20,308	513,002	99,556	546,974	33,287	1,527,276
2010	300,303	19,914	21,448	524,494	91,439	581,310	28,755	1,567,662
2011	286,210	15,230	21,552	535,150	103,615	586,299	31,067	1,579,124
2012	252,605	12,452	24,419	556,945	113,147	580,513	24,571	1,564,653
2013	243,043	12,828	25,224	553,696	103,719	611,443	22,171	1,572,124
2014	232,509	11,990	23,457	545,624	104,868	624,086	21,390	1,563,923
2015	211,030	11,796	21,748	591,749	98,910	626,887	19,729	1,581,849
2016	220,162	8,607	20,122	785,413	148,881	698,858	25,342	1,907,384
2017	193,164	7,922	17,322	789,485	151,579	674,248	23,685	1,857,405
2018	182,373	9,878	16,581	813,127	172,677	663,644	23,169	1,881,448
2019	162,108	7,992	14,278	802,153	142,229	643,548	22,429	1,794,736
Year 2017								
January	19,055	720	1,525	68,635	13,591	59,191	2,181	164,899
February	15,587	494	1,248	61,025	11,816	53,805	1,874	145,848
March	16,988	610	1,617	65,599	12,595	57,856	2,038	157,304
April	15,081	568	1,336	60,483	12,040	53,825	1,948	145,281
May	14,971	539	1,391	62,274	13,346	53,637	1,868	148,026
June	15,501	462	1,576	64,085	12,285	55,874	2,022	151,806
July	15,676	457	1,521	70,083	12,721	57,072	2,032	159,561
August	15,848	447	1,581	68,728	12,505	58,224	2,147	159,481
September	14,580	552	1,281	65,718	12,212	52,154	1,869	148,366
October	16,389	552	1,485	66,078	12,973	55,368	1,811	154,657
November	16,308	1,040	1,398	64,589	12,441	57,071	1,878	154,727
December	17,179	1,480	1,362	72,187	13,054	60,171	2,017	167,450
Year 2018								
January	18,956	2,597	1,662	72,379	13,963	58,883	1,994	170,434
February	16,841	708	1,539	64,059	13,591	52,908	1,886	151,532
March	16,639	601	1,390	67,685	14,652	57,112	2,034	160,113
April	14,584	532	1,472	62,177	13,569	53,599	1,838	147,771
May	14,238	567	1,435	63,879	14,587	54,802	1,821	151,330
June	14,229	634	1,370	65,579	14,392	53,137	2,053	151,393
July	14,346	534	1,361	72,049	14,604	56,586	2,017	161,498
August	14,217	532	1,308	71,554	16,097	56,410	2,065	162,182
September	13,791	491	1,245	66,851	13,972	51,546	1,662	149,558
October	13,254	768	1,287	66,578	14,976	54,658	1,877	153,399
November	15,056	914	1,141	68,771	13,821	55,116	1,925	156,745
December	16,223	998	1,371	71,565	14,452	58,887	1,997	165,493
Year 2019								
January	17,188	1,511	1,276	72,612	12,164	58,244	2,116	165,110
February	15,124	734	1,182	64,964	11,146	52,831	1,957	147,938
March	14,793	609	1,273	68,303	12,304	55,403	1,998	154,682
April	13,488	529	1,257	61,359	12,016	51,489	1,759	141,898
May	12,639	864	1,243	63,354	11,527	52,084	1,647	143,357
June	12,454	409	1,224	64,013	11,309	51,440	1,833	142,683
July	12,106	376	1,204	68,751	12,492	53,785	1,830	150,545
August	12,265	450	1,146	69,982	12,002	54,256	1,915	152,016
September	11,754	468	1,284	65,274	11,652	50,594	1,683	142,709
October	12,909	507	1,055	65,018	11,765	53,397	1,765	146,416
November	13,417	957	950	67,055	11,641	54,062	1,991	150,073
December	13,972	576	1,183	71,467	12,211	55,962	1,936	157,309

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, and solar thermal.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

Beginning with the collection of Form EIA-923 in January 2008, the methodology for separating the fuel used for electricity generation and useful thermal output from combined heat and power plants changed. The new methodology was retroactively applied to 2004-2007, as well as 2008-2015. Beginning with the 2016 Form EIA-923 data, the methodology for separating the fuel used for electricity generation and useful thermal output from CHP plants was updated. This update will apply to the 2016 data and future data years. See the Technical Notes (Appendix C) for further information.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report;

Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Table 3.24. Useful Thermal Output by Energy Source: Electric Power Sector Combined Heat and Power, 2009 - 2019
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2009	38,015	5,341	1,445	190,875	19,830	17,625	5,055	278,187
2010	38,325	4,702	1,108	186,772	19,707	17,589	5,040	273,244
2011	35,209	4,484	1,231	190,712	20,435	16,029	6,044	274,143
2012	26,093	4,405	1,246	200,294	20,948	16,369	5,545	274,900
2013	21,306	4,614	993	188,094	10,303	16,225	4,966	246,501
2014	15,513	4,931	936	182,148	7,732	17,736	5,666	234,662
2015	16,036	4,894	1,143	178,167	7,161	16,999	5,180	229,580
2016	13,922	695	1,237	227,427	17,400	24,993	8,046	293,719
2017	11,269	627	1,267	192,299	17,798	24,279	7,422	254,961
2018	13,573	1,023	1,023	207,459	18,692	23,375	7,119	272,265
2019	12,759	655	1,019	197,106	19,684	26,057	7,544	264,823
Year 2017								
January	1,178	102	106	16,884	1,474	2,419	645	22,809
February	1,004	49	104	14,583	1,327	2,107	570	19,744
March	1,047	22	113	16,687	1,467	2,451	641	22,428
April	799	25	109	14,805	1,394	1,786	629	19,549
May	766	32	112	15,047	1,453	1,727	643	19,780
June	797	33	104	16,004	1,448	1,786	645	20,817
July	925	34	104	17,300	1,518	1,893	684	22,459
August	937	27	102	17,112	1,396	1,860	678	22,113
September	872	58	101	15,575	1,535	1,779	577	20,496
October	932	45	105	15,753	1,615	1,985	488	20,922
November	909	64	98	15,335	1,570	2,154	561	20,691
December	1,104	136	109	17,213	1,599	2,331	663	23,154
Year 2018								
January	1,483	437	104	18,095	1,467	2,384	625	24,596
February	1,151	36	88	16,586	1,398	2,279	568	22,104
March	1,194	35	97	17,454	1,412	2,354	632	23,177
April	1,005	32	105	15,767	1,579	1,614	561	20,663
May	1,050	51	64	16,311	1,661	1,542	573	21,253
June	1,069	37	14	16,547	1,535	1,664	643	21,509
July	1,087	28	97	18,937	1,576	1,794	635	24,154
August	1,073	32	99	18,736	1,569	1,763	620	23,891
September	882	35	80	16,902	1,510	1,594	439	21,442
October	793	46	99	17,040	1,776	1,980	578	22,311
November	1,396	49	86	17,026	1,571	2,200	625	22,954
December	1,391	204	90	18,059	1,639	2,208	619	24,210
Year 2019								
January	1,756	131	85	18,139	1,736	2,518	643	25,008
February	1,186	58	89	15,487	1,764	2,366	595	21,547
March	1,241	58	95	17,184	1,790	2,422	622	23,412
April	1,166	46	98	15,213	1,699	2,226	610	21,057
May	1,089	41	94	14,942	1,511	2,078	690	20,445
June	1,051	42	79	15,814	1,424	1,971	672	21,052
July	995	33	84	16,967	1,643	1,874	661	22,257
August	968	29	91	17,942	1,552	1,970	637	23,188
September	782	63	79	15,907	1,519	1,794	525	20,669
October	901	54	23	15,836	1,721	2,051	551	21,137
November	828	51	100	16,240	1,629	2,367	656	21,871
December	795	50	102	17,435	1,697	2,420	680	23,179

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, and solar thermal.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

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See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

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Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Table 3.25. Useful Thermal Output by Energy Source: Commercial Sector Combined Heat and Power, 2009 - 2019
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2009	20,057	1,095	155	25,902	0	8,450	5,761	61,420
2010	19,216	845	216	29,791	13	7,917	5,333	63,330
2011	17,234	687	111	24,848	14	7,433	5,988	56,314
2012	13,992	523	229	27,922	0	7,970	6,426	57,063
2013	10,942	1,017	222	27,562	0	7,054	5,693	52,489
2014	11,081	820	327	26,876	0	7,610	5,123	51,837
2015	7,966	823	325	26,498	0	8,228	5,641	49,482
2016	8,313	924	140	57,356	0	11,017	5,381	83,131
2017	7,360	806	234	71,149	0	10,762	5,140	95,450
2018	6,943	1,020	165	58,312	0	10,902	4,918	82,260
2019	6,211	1,346	95	56,356	0	8,307	3,335	75,650
Year 2017								
January	848	133	31	6,820	0	1,141	544	9,516
February	689	85	18	5,777	0	946	447	7,962
March	813	94	27	5,569	0	875	444	7,821
April	529	44	9	4,741	0	843	414	6,580
May	493	40	12	4,952	0	830	408	6,734
June	475	29	8	5,725	0	902	448	7,588
July	572	38	6	6,706	0	889	442	8,654
August	506	37	32	6,700	0	920	446	8,641
September	532	34	30	6,039	0	705	357	7,697
October	476	43	20	5,888	0	833	378	7,639
November	632	61	12	5,746	0	929	405	7,785
December	795	166	29	6,486	0	949	407	8,833
Year 2018								
January	952	314	29	5,302	0	964	436	7,998
February	719	87	25	4,783	0	967	423	7,006
March	691	80	23	4,924	0	989	421	7,128
April	573	59	9	4,382	0	904	428	6,354
May	455	43	0	4,357	0	897	449	6,201
June	429	39	0	4,655	0	889	407	6,419
July	474	60	0	5,401	0	914	431	7,280
August	491	53	0	5,442	0	945	421	7,352
September	525	43	14	4,686	0	755	297	6,321
October	496	49	13	4,576	0	831	373	6,338
November	565	93	24	4,858	0	864	403	6,808
December	573	100	26	4,946	0	982	429	7,056
Year 2019								
January	724	200	28	5,239	0	966	482	7,639
February	678	111	16	4,804	0	824	411	6,843
March	691	101	22	4,740	0	816	357	6,728
April	481	52	19	4,242	0	577	178	5,549
May	451	467	0	4,067	0	582	222	5,790
June	305	28	0	4,308	0	613	242	5,497
July	409	48	0	5,172	0	605	213	6,447
August	440	77	0	4,892	0	671	257	6,337
September	474	51	0	4,494	0	647	223	5,888
October	435	55	0	4,370	0	691	242	5,794
November	524	82	0	4,692	0	675	251	6,224
December	599	72	11	5,335	0	640	257	6,914

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, and solar thermal.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

Beginning with the collection of Form EIA-923 in January 2008, the methodology for separating the fuel used for electricity generation and useful thermal output from combined heat and power plants changed. The new methodology was retroactively applied to 2004-2007, as well as 2008-2015. Beginning with the 2016 Form EIA-923 data, the methodology for separating the fuel used for electricity generation and useful thermal output from CHP plants was updated. This update will apply to the 2016 data and future data years. See the Technical Notes (Appendix C) for further information.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report;

Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Table 3.26. Useful Thermal Output by Energy Source: Industrial Sector Combined Heat and Power, 2009 - 2019
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2009	223,485	26,155	18,708	296,225	79,726	520,898	22,471	1,187,669
2010	242,762	14,366	20,124	307,931	71,719	555,804	18,382	1,231,088
2011	233,767	10,059	20,209	319,590	83,167	562,838	19,035	1,248,666
2012	212,520	7,524	22,944	328,729	92,199	556,174	12,599	1,232,689
2013	210,795	7,196	24,009	338,041	93,416	588,165	11,512	1,273,134
2014	199,512	6,120	22,167	334,901	97,137	596,087	10,600	1,266,524
2015	180,501	5,965	20,203	384,369	91,749	598,890	8,899	1,290,576
2016	173,589	6,792	18,692	478,068	131,481	655,831	11,904	1,476,358
2017	151,780	6,289	15,721	503,614	133,781	631,768	11,112	1,454,066
2018	142,671	7,535	15,281	521,936	153,985	622,699	11,118	1,475,224
2019	127,411	5,787	13,012	523,919	122,544	607,138	11,535	1,411,347
Year 2017								
January	14,596	452	1,387	42,833	12,117	54,855	992	127,232
February	12,236	341	1,122	38,798	10,489	50,096	856	113,937
March	13,192	483	1,472	41,319	11,127	53,791	952	122,336
April	11,876	490	1,217	39,194	10,646	50,519	904	114,845
May	12,013	457	1,260	40,419	11,893	50,615	818	117,475
June	12,505	386	1,456	40,850	10,837	52,544	928	119,505
July	12,097	374	1,400	44,074	11,203	53,848	905	123,901
August	12,388	373	1,428	43,041	11,109	54,822	1,022	124,183
September	11,528	450	1,140	42,385	10,676	49,080	934	116,192
October	13,159	452	1,352	42,676	11,359	51,977	944	121,920
November	12,704	904	1,277	41,707	10,871	53,411	912	121,785
December	13,486	1,128	1,212	46,318	11,455	56,210	945	130,754
Year 2018								
January	14,472	1,677	1,516	46,673	12,496	54,988	932	132,754
February	13,139	572	1,417	40,743	12,193	49,103	894	118,061
March	13,006	476	1,262	43,193	13,241	53,174	978	125,329
April	11,359	432	1,345	40,349	11,989	50,528	848	116,851
May	11,248	462	1,364	41,234	12,926	51,916	800	119,948
June	11,183	544	1,344	42,224	12,857	50,140	1,002	119,295
July	11,209	437	1,253	45,047	13,028	53,237	950	125,161
August	11,104	436	1,199	44,958	14,528	53,149	1,023	126,397
September	10,875	395	1,143	43,198	12,463	48,750	924	117,747
October	10,610	658	1,172	43,194	13,200	51,191	926	120,951
November	11,718	763	1,022	45,021	12,250	51,484	894	123,152
December	12,749	684	1,245	46,103	12,813	55,038	947	129,578
Year 2019								
January	13,124	1,129	1,151	46,960	10,428	54,504	990	128,286
February	11,791	540	1,065	42,487	9,382	49,408	950	115,622
March	11,431	434	1,148	44,198	10,513	51,928	1,018	120,671
April	10,724	421	1,118	40,351	10,317	48,442	970	112,343
May	10,189	342	1,143	42,727	10,016	49,351	731	114,500
June	9,851	330	1,137	42,011	9,886	48,749	919	112,881
July	9,400	285	1,097	44,343	10,848	51,142	955	118,071
August	9,396	329	1,053	44,741	10,450	51,506	1,019	118,495
September	9,268	340	1,185	42,651	10,133	48,088	933	112,598
October	10,273	385	1,026	43,037	10,045	50,520	972	116,257
November	10,745	812	836	44,067	10,012	50,820	1,082	118,376
December	11,219	440	1,052	46,346	10,514	52,680	996	123,248

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

Other Gas includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Prior to 2011, Other Gas included propane and synthesis gases.

See the Technical Notes for fuel conversion factors.

Renewable Sources include wood, black liquor, other wood waste, biogenic municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, and solar thermal.

Other includes non-biogenic municipal solid waste, batteries, hydrogen, purchased steam, sulfur, tire-derived fuel, and other miscellaneous energy sources.

Notes: Beginning with 2001 data, non-biogenic municipal solid waste and tire-derived fuels are reclassified as non-renewable energy sources and included in Other. Biogenic municipal solid waste is included in Other Renewable Sources.

Beginning with the collection of Form EIA-923 in January 2008, the methodology for separating the fuel used for electricity generation and useful thermal output from combined heat and power plants changed. The new methodology was retroactively applied to 2004-2007, as well as 2008-2015. Beginning with the 2016 Form EIA-923 data, the methodology for separating the fuel used for electricity generation and useful thermal output from CHP plants was updated. This update will apply to the 2016 data and future data years. See the Technical Notes (Appendix C) for further information.

See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding. NM=Not meaningful due to large standard error. W=Withheld to avoid disclosure of individual company data.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report; and predecessor forms.

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Chapter 4

Generation Capacity

Table 4.1. Count of Electric Power Industry Power Plants, by Sector, by Predominant Energy Sources within Plant, 2009 through 2019

Year	Coal	Petroleum	Natural Gas	Other Gases	Nuclear	Hydroelectric Conventional	Other Renewables	Hydroelectric Pumped Storage	Other Energy Sources
Total (All Sectors)									
2009	593	1,168	1,652	43	66	1,427	1,219	39	28
2010	580	1,169	1,657	48	66	1,432	1,355	39	32
2011	589	1,146	1,646	41	66	1,434	1,582	40	54
2012	557	1,129	1,714	44	66	1,426	1,956	41	64
2013	518	1,101	1,725	44	63	1,435	2,299	41	78
2014	491	1,082	1,749	43	62	1,441	2,674	41	94
2015	427	1,082	1,779	45	62	1,440	3,043	41	83
2016	381	1,076	1,801	45	61	1,451	3,624	40	117
2017	359	1,080	1,820	44	61	1,458	4,174	40	148
2018	336	1,087	1,854	46	60	1,458	4,667	40	171
2019	308	1,090	1,899	43	58	1,452	5,244	40	212
Electric Utilities									
2009	340	855	768	--	34	887	129	34	1
2010	333	855	775	3	34	888	155	34	--
2011	332	829	777	--	34	884	189	35	1
2012	315	815	797	--	34	875	238	36	5
2013	300	795	787	1	32	873	253	36	15
2014	286	780	803	1	32	889	272	35	20
2015	256	782	816	1	32	890	318	35	15
2016	230	771	819	1	31	893	375	35	36
2017	219	765	820	1	31	894	417	35	53
2018	206	751	819	1	31	896	462	35	60
2019	194	743	818	1	31	898	512	35	71
Independent Power Producers, Non-Combined Heat and Power Plants									
2009	100	173	377	1	32	485	868	5	2
2010	102	175	380	1	32	488	966	5	6
2011	98	166	373	--	32	490	1,106	5	12
2012	88	150	368	--	32	494	1,388	5	16
2013	86	147	384	1	31	505	1,670	5	15
2014	87	148	395	1	30	499	2,006	5	18
2015	80	143	397	--	30	497	2,309	5	21
2016	75	142	406	--	30	500	2,826	5	34
2017	71	145	415	--	30	505	3,320	5	43
2018	65	140	450	--	29	514	3,749	5	59
2019	59	141	476	--	27	506	4,251	5	74
Independent Power Producers, Combined Heat and Power Plants									
2009	51	10	166	3	--	--	41	--	--
2010	48	10	161	2	--	--	41	--	--
2011	45	11	156	1	--	--	38	--	1
2012	42	12	157	2	--	--	47	--	--
2013	35	11	152	2	--	1	51	--	5
2014	30	9	145	2	--	--	54	--	7
2015	27	8	143	3	--	--	58	--	3
2016	24	7	143	3	--	--	57	--	2
2017	22	7	138	3	--	--	56	--	3
2018	19	8	133	3	--	--	56	--	3
2019	14	6	128	3	--	--	56	--	3
Commercial Sector									
2009	18	68	107	1	--	9	47	--	1
2010	17	69	110	1	--	9	57	--	1
2011	22	80	118	--	--	10	105	--	2
2012	22	89	153	--	--	9	129	--	2
2013	19	92	164	--	--	9	160	--	3
2014	17	93	169	--	--	10	178	1	6
2015	12	94	176	--	--	10	186	1	3
2016	9	101	181	--	--	14	195	--	3
2017	9	112	189	--	--	15	203	--	4
2018	7	139	192	--	--	15	220	--	5
2019	6	152	203	--	--	15	242	--	20
Industrial Sector									
2009	84	62	234	38	--	46	134	--	24
2010	80	60	231	41	--	47	136	--	25
2011	92	60	222	40	--	50	144	--	38
2012	90	63	239	42	--	48	154	--	41
2013	78	56	238	40	--	47	165	--	40
2014	71	52	237	39	--	43	164	--	43
2015	52	55	247	41	--	43	172	--	41
2016	43	55	252	41	--	44	171	--	42
2017	38	51	258	40	--	44	178	--	45
2018	39	49	260	42	--	33	180	--	44
2019	35	48	274	39	--	33	183	--	44

generators. If all generators for a site have the same energy source reported as the most predominant, that site will be counted once under that energy source. However, if the most predominant energy source is not the same for all generators within a site, the site is counted more than once, based on the number of most predominant energy sources for generators at a site. In general, this table translates the number of generators by energy source into the number of sites represented by the generators for an energy source. Therefore, the count for Total (All Sectors) above is the sum of the counts for each sector by energy source and does not necessarily represent unique sites. In addition, changes to predominant energy sources and status codes from year to year may result in changes to previously-posted data.

Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator.

In 2011, EIA corrected the NAICS codes of several plants which resulted in a net capacity shift from the electric utility sector to the commercial sector.

Table 4.2.A. Existing Net Summer Capacity by Energy Source and Producer Type, 2009 through 2019 (Megawatts)

Year	Utility Scale Capacity										Small Scale Capacity Estimated Photovoltaic
	Coal	Petroleum	Natural Gas	Other Gases	Nuclear	Hydroelectric Conventional	Other Renewable Sources	Hydroelectric Pumped Storage	Other Energy Sources	Utility Total	
Total (All Sectors)											
2009	314,294.1	56,780.5	401,271.8	1,932.4	101,003.7	78,517.7	48,552.0	22,160.4	887.8	1,025,400.4	--
2010	316,800.1	55,646.9	407,028.4	2,700.3	101,167.4	78,824.7	53,811.3	22,198.9	883.8	1,039,061.8	--
2011	317,640.3	51,481.6	415,191.3	1,934.2	101,418.8	78,651.6	61,221.0	22,292.6	1,419.6	1,051,251.0	--
2012	309,680.4	47,167.2	422,364.4	1,945.6	101,885.0	78,738.0	77,155.2	22,368.3	1,728.9	1,063,033.0	--
2013	303,306.3	43,523.0	425,389.7	2,107.8	99,240.3	79,200.0	82,600.1	22,389.3	2,307.0	1,060,063.5	--
2014	299,094.2	41,135.4	432,150.3	1,914.3	98,569.3	79,677.3	90,603.7	22,485.1	2,792.6	1,068,422.2	7,326.6
2015	279,719.9	36,830.3	439,425.4	2,500.4	98,672.0	79,664.2	102,871.6	22,575.1	1,795.6	1,064,054.5	9,778.5
2016	266,619.9	34,382.4	446,823.2	2,456.9	99,564.8	79,912.9	119,778.9	22,778.7	2,015.1	1,074,332.8	12,765.1
2017	256,547.3	33,306.7	456,011.6	2,375.8	99,628.9	79,794.5	131,008.1	22,810.4	2,886.3	1,084,369.6	16,147.8
2018	242,785.6	32,218.2	470,236.9	2,543.9	99,432.9	79,871.8	142,473.6	22,830.2	2,346.7	1,094,739.8	19,547.1
2019	228,657.4	31,400.3	476,567.4	2,499.2	98,119.0	79,773.1	156,708.2	22,778.3	2,606.4	1,099,109.3	23,213.6
Electric Utilities											
2009	234,396.6	30,174.1	180,570.7	--	54,355.2	72,689.7	5,613.9	18,930.0	39.0	596,769.2	--
2010	235,706.8	28,971.9	184,230.5	539.0	54,369.3	72,973.9	6,316.1	18,968.5	--	602,076.0	--
2011	236,391.7	27,669.9	193,630.5	--	54,351.6	72,182.4	7,811.1	19,062.2	5.3	611,104.7	--
2012	232,078.5	26,731.8	206,774.4	--	54,716.7	72,505.1	9,823.8	19,093.9	60.7	621,784.9	--
2013	228,478.0	24,648.8	208,485.7	12.0	52,399.1	72,755.2	10,118.4	19,114.9	787.3	616,799.4	--
2014	219,837.9	24,045.0	215,690.8	12.0	52,390.9	73,725.4	10,893.7	19,121.3	914.5	616,631.5	--
2015	202,922.4	22,269.7	223,215.6	12.0	52,457.2	73,713.0	12,654.3	19,211.3	87.5	606,543.0	--
2016	193,122.6	20,285.5	229,677.1	12.0	53,274.1	73,879.3	14,236.4	19,398.3	236.1	604,121.4	--
2017	186,623.1	19,999.9	236,557.8	12.0	53,343.6	73,739.5	15,281.3	19,430.0	519.3	605,506.5	--
2018	179,047.8	18,642.6	241,477.0	12.0	53,725.6	73,818.2	18,155.9	19,449.8	341.8	604,670.7	--
2019	171,088.7	18,219.8	247,018.9	12.0	53,880.6	73,719.7	20,745.8	19,428.9	418.3	604,532.7	--
Independent Power Producers, Non-Combined Heat and Power Plants											
2009	70,122.5	24,657.1	176,034.8	7.6	46,648.5	5,469.6	36,556.4	3,230.4	45.9	362,772.8	--
2010	71,214.4	24,866.8	178,190.4	7.6	46,798.1	5,488.6	41,013.7	3,230.4	76.9	370,886.9	--
2011	72,119.5	22,398.8	176,516.5	--	47,067.2	5,539.0	46,698.4	3,230.4	169.2	373,739.0	--
2012	69,068.4	18,643.9	170,653.8	--	47,168.3	5,568.6	60,116.8	3,274.4	470.2	374,964.4	--
2013	67,153.5	17,444.7	171,653.6	47.0	46,841.2	5,762.2	64,890.5	3,274.4	231.2	377,298.3	--
2014	71,994.6	15,724.4	172,224.5	47.0	46,178.4	5,651.2	72,144.4	3,358.4	238.7	387,561.6	--
2015	70,217.8	13,102.9	172,519.2	--	46,214.8	5,650.5	82,014.6	3,358.4	354.3	393,432.5	--
2016	67,667.7	12,587.4	173,455.8	--	46,290.7	5,676.9	97,408.4	3,380.4	487.5	406,954.8	--
2017	64,419.3	11,777.0	176,029.0	--	46,285.3	5,697.9	107,618.0	3,380.4	989.3	416,196.2	--
2018	58,716.2	11,733.2	186,542.1	--	45,707.3	5,770.0	116,197.3	3,380.4	670.1	428,716.6	--
2019	53,646.5	11,514.8	187,715.6	--	44,238.4	5,764.3	127,964.3	3,349.4	760.7	434,954.0	--
Independent Power Producers, Combined Heat and Power Plants											
2009	5,939.5	897.0	28,875.4	205.8	--	--	739.9	--	--	36,657.6	--
2010	5,450.6	766.0	29,005.6	182.3	--	--	845.5	--	--	36,250.0	--
2011	5,146.0	317.0	29,372.6	30.0	--	--	792.9	--	53.0	35,711.5	--
2012	4,755.9	317.2	29,128.6	83.0	--	--	981.2	--	--	35,265.9	--
2013	4,313.7	322.2	29,081.2	83.0	--	4.3	945.1	--	121.8	34,871.3	--
2014	4,073.0	308.2	27,676.7	83.0	--	--	885.9	--	335.8	33,362.6	--
2015	3,843.6	307.2	27,284.1	350.0	--	--	970.5	--	126.0	32,881.4	--
2016	3,552.4	301.2	27,222.4	350.0	--	--	1,068.3	--	19.0	32,513.3	--
2017	3,338.0	301.2	26,922.1	350.0	--	--	969.8	--	21.0	31,902.1	--
2018	2,922.0	458.0	25,658.1	350.0	--	--	884.2	--	21.0	30,293.3	--
2019	2,074.1	298.8	24,782.0	350.0	--	--	944.9	--	112.0	28,561.8	--
Commercial Sector											
2009	423.7	348.3	1,104.7	4.7	--	21.7	480.1	--	2.8	2,386.0	--
2010	418.2	368.2	1,154.5	4.7	--	21.7	519.7	--	2.8	2,489.8	--
2011	435.7	406.3	1,282.6	--	--	233.5	694.1	--	4.2	3,056.4	--
2012	435.6	442.7	1,544.9	--	--	18.4	776.8	--	4.2	3,222.6	--
2013	341.9	455.7	1,778.9	--	--	17.8	947.6	--	9.1	3,551.0	--
2014	290.1	463.5	1,832.6	--	--	21.4	1,066.8	5.4	15.6	3,695.4	3,279.7
2015	226.6	466.1	1,932.5	--	--	21.4	1,126.5	5.4	6.7	3,785.2	3,706.7
2016	202.4	511.0	1,982.6	--	--	74.5	1,132.0	--	6.7	3,909.2	4,022.8
2017	202.4	596.5	2,018.7	--	--	74.9	1,162.0	--	11.6	4,066.1	5,155.8
2018	144.2	823.6	2,157.6	--	--	74.7	1,241.5	--	13.0	4,454.6	6,271.4
2019	123.2	856.7	2,247.5	--	--	74.9	1,218.6	--	49.1	4,570.0	7,167.9
Industrial Sector											
2009	3,411.8	704.0	14,686.2	1,714.3	--	336.7	5,161.7	--	800.1	26,814.8	--
2010	4,010.1	674.0	14,447.4	1,966.7	--	340.5	5,116.3	--	804.1	27,359.1	--
2011	3,547.4	689.6	14,389.1	1,904.2	--	696.7	5,224.5	--	1,187.9	27,639.4	--
2012	3,342.0	1,031.6	14,262.7	1,862.6	--	645.9	5,456.6	--	1,193.8	27,795.2	--
2013	3,019.2	651.6	14,390.3	1,965.8	--	660.5	5,698.5	--	1,157.6	27,543.5	--
2014	2,898.6	594.3	14,725.7	1,772.3	--	279.3	5,612.9	--	1,288.0	27,171.1	700.6
2015	2,509.5	684.4	14,474.0	2,138.4	--	279.3	6,105.7	--	1,221.1	27,412.4	880.3
2016	2,074.8	697.3	14,485.3	2,094.9	--	282.2	5,933.8	--	1,265.8	26,834.1	1,215.3
2017	1,964.5	632.1	14,484.0	2,013.8	--	282.2	5,977.0	--	1,345.1	26,698.7	1,365.1
2018	1,955.4	560.8	14,402.1	2,181.9	--	208.9	5,994.7	--	1,300.8	26,604.6	1,555.4
2019	1,724.9	510.2	14,803.4	2,137.2	--	214.2	5,834.6	--	1,266.3	26,490.8	1,796.6
Residential Sector											
2014	--	--	--	--	--	--	--	--	--	--	3,346.3
2015	--	--	--	--	--	--	--	--	--	--	5,191.5
2016	--	--	--	--	--	--	--	--	--	--	7,527.0
2017	--	--	--	--	--	--	--	--	--	--	9,626.8
2018	--	--	--	--	--	--	--	--	--	--	11,720.4
2019	--	--	--	--	--	--	--	--	--	--	14,249.0

Notes: Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; coal synfuel and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011, coal-derived synthesis gas was included in Other Gases. Petroleum includes distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, petroleum coke (converted to liquid petroleum, see Technical Notes for conversion methodology), waste oil, and beginning in 2011, synthetic gas and propane. Prior to 2011, synthetic gas and propane were included in Other Gases. Other Gases also includes blast furnace gas. Prior to 2011, waste heat was included in Natural Gas. Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities. Other Renewable Sources include wood, black liquor, other wood waste, municipal solid waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind. Other Energy Sources include batteries, hydrogen, purchased steam, sulfur, tire-derived fuels and other miscellaneous energy sources. In 2011, EIA corrected the NAICS codes of several plants which resulted in a net capacity shift from the electric utility sector to the commercial sector. Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.' Estimated small scale solar photovoltaic generation and capacity are based on data from Form EIA-826, Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 4.2.B. Existing Net Summer Capacity of Other Renewable Sources by Producer Type, 2009 through 2019 (Megawatts) (Page 1)

Year	Utility Scale Capacity							Utility and Small Scale Capacity		
	Wind	Solar Photovoltaic	Solar Thermal	Wood and Wood-Derived Fuels	Geothermal	Other Biomass	Total Utility (Other Renewable Sources)	Estimated Small Scale Photovoltaic	Total Solar Photovoltaic	Total Solar
Total (All Sectors)										
2009	34,295.8	145.5	473.0	6,939.3	2,381.9	4,316.5	48,552.0	--	145.5	618.5
2010	39,134.5	393.4	473.0	7,037.3	2,404.6	4,368.5	53,811.3	--	393.4	866.4
2011	45,675.9	1,052.0	471.5	7,076.5	2,409.2	4,535.9	61,221.0	--	1,052.0	1,523.5
2012	59,074.8	2,694.1	476.0	7,507.6	2,592.1	4,810.6	77,155.2	--	2,694.1	3,170.1
2013	59,973.4	5,336.1	1,286.4	8,354.2	2,607.0	5,043.0	82,600.1	--	5,336.1	6,622.5
2014	64,231.5	8,656.6	1,666.7	8,368.1	2,514.3	5,166.5	90,603.7	7,326.6	15,983.2	17,649.9
2015	72,573.4	11,905.4	1,757.9	8,968.9	2,541.5	5,124.5	102,871.6	9,778.5	21,683.9	23,441.8
2016	81,286.6	20,192.9	1,757.9	8,936.1	2,516.6	5,088.8	119,778.9	12,765.1	32,958.0	34,715.9
2017	87,597.5	25,209.0	1,757.9	8,830.9	2,483.3	5,129.5	131,008.1	16,147.8	41,356.8	43,114.7
2018	94,417.7	30,120.5	1,757.9	8,694.6	2,444.3	5,038.6	142,473.6	19,547.1	49,667.6	51,425.5
2019	103,571.2	35,710.2	1,758.1	8,374.5	2,555.4	4,738.8	156,708.2	23,213.6	58,923.8	60,681.9
Electric Utilities										
2009	4,654.8	41.0	1.0	431.3	158.9	326.9	5,613.9	--	41.0	42.0
2010	5,338.3	78.2	1.0	414.3	158.9	325.4	6,316.1	--	78.2	79.2
2011	6,735.2	201.4	1.0	359.1	158.9	355.5	7,811.1	--	201.4	202.4
2012	8,488.7	331.2	1.0	364.1	162.1	476.7	9,823.8	--	331.2	332.2
2013	8,424.7	487.9	--	564.3	164.1	477.4	10,118.4	--	487.9	487.9
2014	9,022.6	568.5	--	654.8	164.1	483.7	10,893.7	--	568.5	568.5
2015	10,580.9	842.9	--	623.8	165.9	440.8	12,654.3	--	842.9	842.9
2016	11,552.6	1,388.4	--	708.8	167.9	418.7	14,236.4	--	1,388.4	1,388.4
2017	12,150.8	1,724.5	--	811.3	161.9	432.8	15,281.3	--	1,724.5	1,724.5
2018	14,031.7	2,683.5	--	807.0	148.8	484.9	18,155.9	--	2,683.5	2,683.5
2019	15,715.0	3,851.4	--	696.2	146.5	336.7	20,745.8	--	3,851.4	3,851.4
Independent Power Producers, Non-Combined Heat and Power Plants										
2009	29,639.8	103.4	472.0	1,220.2	2,223.0	2,898.0	36,556.4	--	103.4	575.4
2010	33,783.9	307.9	472.0	1,274.5	2,245.7	2,929.7	41,013.7	--	307.9	779.9
2011	38,911.8	792.1	470.5	1,312.5	2,250.3	2,961.2	46,698.4	--	792.1	1,262.6
2012	50,547.6	2,255.7	475.0	1,398.8	2,384.2	3,055.5	60,116.8	--	2,255.7	2,730.7
2013	51,497.8	4,647.6	1,286.4	1,845.4	2,401.1	3,212.2	64,890.5	--	4,647.6	5,934.0
2014	55,133.0	7,857.0	1,666.7	1,816.6	2,308.8	3,362.3	72,144.4	--	7,857.0	9,523.7
2015	61,905.4	10,768.2	1,757.9	1,873.3	2,375.6	3,334.2	82,014.6	--	10,768.2	12,526.1
2016	69,645.4	18,483.3	1,757.9	1,789.6	2,348.7	3,383.5	97,408.4	--	18,483.3	20,241.2
2017	75,346.6	23,127.0	1,757.9	1,649.1	2,321.4	3,416.0	107,618.0	--	23,127.0	24,884.9
2018	80,267.6	27,055.8	1,757.9	1,576.2	2,246.1	3,293.7	116,197.3	--	27,055.8	28,813.7
2019	87,737.8	31,416.4	1,758.1	1,475.7	2,359.5	3,216.8	127,964.3	--	31,416.4	33,174.5

Notes: Wood and wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Biomass includes municipal solid waste, landfill gas, sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

* = Value is less than half of the smallest unit of measure.

Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Estimated small scale solar photovoltaic generation capacity are based on data from Form EIA-826, Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 4.2.B. Existing Net Summer Capacity of Other Renewable Sources by Producer Type,

2009 through 2019 (Megawatts) (Page 2)

Year	Utility Scale Capacity						Utility and Small Scale Capacity			
	Wind	Solar Photovoltaic	Solar Thermal	Wood and Wood-Derived Fuels	Geothermal	Other Biomass	Total Utility (Other Renewable Sources)	Estimated Small Scale Photovoltaic	Total Solar Photovoltaic	Total Solar
Independent Power Producers, Combined Heat and Power Plants										
2009	--	--	--	237.2	--	502.7	739.9	--	--	--
2010	--	--	--	392.8	--	452.7	845.5	--	--	--
2011	--	--	--	356.3	--	436.6	792.9	--	--	--
2012	--	--	--	489.8	45.8	445.6	981.2	--	--	--
2013	--	--	--	469.2	41.8	434.1	945.1	--	--	--
2014	--	--	--	465.5	41.4	379.0	885.9	--	--	--
2015	--	--	--	568.2	--	402.3	970.5	--	--	--
2016	--	1.0	--	667.2	--	400.1	1,068.3	--	1.0	1.0
2017	--	2.5	--	582.0	--	385.3	969.8	--	2.5	2.5
2018	--	3.3	--	492.7	--	388.2	884.2	--	3.3	3.3
2019	--	3.3	--	554.7	--	386.9	944.9	--	3.3	3.3
Commercial Sector										
2009	1.2	0.1	--	7.6	--	471.2	480.1	--	0.1	0.1
2010	10.5	5.9	--	7.6	--	495.7	519.7	--	5.9	5.9
2011	24.6	54.1	--	7.6	--	607.8	694.1	--	54.1	54.1
2012	29.8	99.9	--	7.6	--	639.5	776.8	--	99.9	99.9
2013	33.2	192.9	--	8.4	--	713.1	947.6	--	192.9	192.9
2014	51.6	223.4	--	65.4	--	726.4	1,066.8	3,279.7	3,503.1	3,503.1
2015	55.3	282.1	--	65.3	--	723.8	1,126.5	3,706.7	3,988.8	3,988.8
2016	56.8	300.8	--	67.1	--	707.3	1,132.0	4,022.8	4,323.6	4,323.6
2017	60.8	311.6	--	63.1	--	726.5	1,162.0	5,155.8	5,467.4	5,467.4
2018	73.4	330.6	--	63.1	49.4	725.0	1,241.5	6,271.4	6,602.0	6,602.0
2019	73.4	381.1	--	63.1	49.4	651.6	1,218.6	7,167.9	7,549.0	7,549.0
Industrial Sector										
2009	--	1.0	--	5,043.0	--	117.7	5,161.7	--	1.0	1.0
2010	1.8	1.4	--	4,948.1	--	165.0	5,116.3	--	1.4	1.4
2011	4.3	4.4	--	5,041.0	--	174.8	5,224.5	--	4.4	4.4
2012	8.7	7.3	--	5,247.3	--	193.3	5,456.6	--	7.3	7.3
2013	17.7	7.7	--	5,466.9	--	206.2	5,698.5	--	7.7	7.7
2014	24.3	7.7	--	5,365.8	--	215.1	5,612.9	700.6	708.3	708.3
2015	31.8	12.2	--	5,838.3	--	223.4	6,105.7	880.3	892.5	892.5
2016	31.8	19.4	--	5,703.4	--	179.2	5,933.8	1,215.3	1,234.7	1,234.7
2017	39.3	43.4	--	5,725.4	--	168.9	5,977.0	1,365.1	1,408.5	1,408.5
2018	45.0	47.3	--	5,755.6	--	146.8	5,994.7	1,555.4	1,602.7	1,602.7
2019	45.0	58.0	--	5,584.8	--	146.8	5,834.6	1,796.6	1,854.6	1,854.6
Residential Sector										
2014	--	--	--	--	--	--	--	3,346.3	3,346.3	3,346.3
2015	--	--	--	--	--	--	--	5,191.5	5,191.5	5,191.5
2016	--	--	--	--	--	--	--	7,527.0	7,527.0	7,527.0
2017	--	--	--	--	--	--	--	9,626.8	9,626.8	9,626.8
2018	--	--	--	--	--	--	--	11,720.4	11,720.4	11,720.4
2019	--	--	--	--	--	--	--	14,249.0	14,249.0	14,249.0

Notes: Wood and wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Biomass includes municipal solid waste, landfill gas, sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

* = Value is less than half of the smallest unit of measure.

Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Estimated small scale solar photovoltaic generation capacity are based on data from Form EIA-826, Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 4.3. Existing Capacity by Energy Source, 2019 (Megawatts)

Energy Source	Facility Type	Number of Generators	Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity
Coal	Utility Scale	668	248,286.3	228,657.4	229,623.7
Petroleum	Utility Scale	3,691	36,120.0	31,400.3	33,727.7
Natural Gas	Utility Scale	6,020	542,413.2	476,567.4	511,196.1
Other Gases	Utility Scale	91	2,863.3	2,499.2	2,551.1
Nuclear	Utility Scale	96	102,877.3	98,119.0	100,141.5
Hydroelectric Conventional	Utility Scale	4,014	79,787.1	79,773.1	79,172.2
Wind	Utility Scale	1,354	104,333.6	103,571.2	103,667.8
Solar Photovoltaic	Utility Scale	3,948	36,013.4	35,710.2	35,267.9
Solar Thermal	Utility Scale	19	1,774.6	1,758.1	1,597.4
Wood and Wood-Derived Fuels	Utility Scale	333	9,519.1	8,374.5	8,496.2
Geothermal	Utility Scale	172	3,849.3	2,555.4	2,963.3
Other Biomass	Utility Scale	1,917	5,382.7	4,738.8	4,799.2
Hydroelectric Pumped Storage	Utility Scale	153	21,871.3	22,778.3	22,598.6
Other Energy Sources	Utility Scale	255	2,825.9	2,606.4	2,656.5
Total	Utility Scale	22,731	1,197,917.1	1,099,109.3	1,138,459.2
Small Scale Photovoltaic	Small Scale	--	--	23,213.6	--
Estimated Total Photovoltaic	Utility and Small Scale	--	--	58,923.8	--
Estimated Total Solar	Utility and Small Scale	--	--	60,681.9	--

Notes: Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; coal synfuel and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011, coal-derived synthesis gas was included in Other Gases.

Petroleum includes distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, petroleum coke (converted to liquid petroleum, see Technical Notes for conversion methodology), waste oil, and beginning in 2011, synthetic gas and propane. Prior to 2011, synthetic gas and propane were included in Other Gases.

Other Gases includes blast furnace gas. Prior to 2011, waste heat was included in Natural Gas.

Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities.

Wood and wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Biomass include municipal solid waste, landfill gas, sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities.

Other Energy Sources include batteries, hydrogen, purchased steam, sulfur, tire-derived fuels and other miscellaneous energy sources.

Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator.

In 2011, EIA corrected the NAICS codes of several plants which resulted in a net capacity shift from the electric utility sector to the commercial sector.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Estimated small scale solar photovoltaic capacity is based on data from Form EIA-826, Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 4.4. Existing Capacity by Producer Type, 2019 (Megawatts)

Producer Type	Facility Type	Number of Generators	Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity
Electric Power Sector					
Electric Utilities	Utility Scale	9,559	660,512.2	604,532.7	624,823.4
Independent Power Producers, Non-Combined Heat and Power Plants	Utility Scale	9,629	469,617.6	434,954.0	449,868.6
Independent Power Producers, Combined Heat and Power Plants	Utility Scale	477	32,166.2	28,561.8	30,818.6
Total	Utility Scale	19,665	1,162,296.0	1,068,048.5	1,105,510.6
Commercial and Industrial Sectors					
Commercial Sector	Utility Scale	1,555	5,028.3	4,570.0	4,663.7
Industrial Sector	Utility Scale	1,511	30,592.8	26,490.8	28,284.9
Total	Utility Scale	3,066	35,621.1	31,060.8	32,948.6
All Sectors					
Total	Utility Scale	22,731	1,197,917.1	1,099,109.3	1,138,459.2
Small Scale					
Estimated Solar Photovoltaic	Small Scale	--	--	23,213.6	--

Notes:

See Glossary reference for definitions.

Totals may not equal sum of components because of independent rounding.

In the case of some wind, solar and wave energy sites, the capacity for multiple generators is reported in a single generator record and is presented as a single generator in the generator count.

Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Estimated small scale solar photovoltaic capacity is based on data from Form EIA-826, Form EIA-861M, Form EIA-861 and from estimation methods described in the technical notes.

Table 4.5. Planned Utility-Scale Generating Capacity Changes, by Energy Source, 2020-2024 (Page 1)

Energy Source	Generator Additions		Generator Retirements		Net Capacity Additions	
	Number of Generators	Net Summer Capacity	Number of Generators	Net Summer Capacity	Number of Generators	Net Summer Capacity
Year 2020						
U.S. Total	802	44,866.9	146	12,760.7	656	32,106.2
Coal	1	17.0	35	8,824.2	-34	-8,807.2
Petroleum	9	10.4	13	282.3	-4	-271.9
Natural Gas	64	6,565.6	60	1,805.8	4	4,759.8
Other Gases	--	--	--	--	--	--
Nuclear	--	--	2	1,617.5	-2	-1,617.5
Hydroelectric Conventional	12	161.5	2	1.8	10	159.7
Wind	132	23,470.7	10	123.1	122	23,347.6
Solar Thermal and Photovoltaic	515	13,535.7	--	--	515	13,535.7
Wood and Wood-Derived Fuels	1	8.5	1	20.0	--	-11.5
Geothermal	--	--	--	--	--	--
Other Biomass	12	55.0	23	86.0	-11	-31.0
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	56	1,042.5	--	--	56	1,042.5
Year 2021						
U.S. Total	447	31,873.8	54	9,635.6	393	22,238.2
Coal	--	--	14	3,308.8	-14	-3,308.8
Petroleum	--	--	15	808.4	-15	-808.4
Natural Gas	90	7,282.1	15	367.7	75	6,914.4
Other Gases	--	--	--	--	--	--
Nuclear	1	1,100.0	5	5,134.9	-4	-4,034.9
Hydroelectric Conventional	22	102.3	4	4.2	18	98.1
Wind	54	7,825.8	1	11.6	53	7,814.2
Solar Thermal and Photovoltaic	211	12,151.1	--	--	211	12,151.1
Wood and Wood-Derived Fuels	--	--	--	--	--	--
Geothermal	2	42.0	--	--	2	42.0
Other Biomass	1	2.0	--	--	1	2.0
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	66	3,368.5	--	--	66	3,368.5
Year 2022						
U.S. Total	228	27,124.3	52	11,406.4	176	15,717.9
Coal	--	--	23	7,720.1	-23	-7,720.1
Petroleum	--	--	9	1,749.6	-9	-1,749.6
Natural Gas	47	14,431.8	17	1,155.8	30	13,276.0
Other Gases	--	--	--	--	--	--
Nuclear	1	1,100.0	1	771.6	--	328.4
Hydroelectric Conventional	10	19.8	--	--	10	19.8
Wind	17	2,493.9	--	--	17	2,493.9
Solar Thermal and Photovoltaic	127	7,702.2	--	--	127	7,702.2
Wood and Wood-Derived Fuels	2	48.0	1	7.8	1	40.2
Geothermal	--	--	--	--	--	--
Other Biomass	3	4.2	--	--	3	4.2
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	21	1,324.4	1	1.5	20	1,322.9

Notes: These data reflect plans as of December 31, 2019

Coal includes anthracite, bituminous, subbituminous, lignite, waste coal, coal synfuel, refined coal, and coal-derived synthesis gas.

Petroleum includes distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, petroleum coke (converted to liquid petroleum, see Technical Notes for conversion methodology), waste oil, synthetic gas, and propane.

Other Gases also includes blast furnace gas.

Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities.

Wood and wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Biomass include municipal solid waste, landfill gas, sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities.

Other Energy Sources include batteries, hydrogen, purchased steam, sulfur, tire-derived fuels and other miscellaneous energy sources.

Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator.

In the case of wind, solar and wave energy sites, the capacity for multiple generators is reported in a single generator record and is presented as a single generator in the generator count.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Table 4.5. Planned Generating Capacity Changes, by Energy Source, 2020-2024 (Page 2)

Energy Source	Generator Additions		Generator Retirements		Net Capacity Additions	
	Number of Generators	Net Summer Capacity	Number of Generators	Net Summer Capacity	Number of Generators	Net Summer Capacity
Year 2023						
U.S. Total	117	15,664.7	76	11,738.9	41	3,925.8
Coal	--	--	17	5,309.5	-17	-5,309.5
Petroleum	--	--	12	977.9	-12	-977.9
Natural Gas	24	7,457.5	37	5,411.7	-13	2,045.8
Other Gases	--	--	--	--	--	--
Nuclear	--	--	--	--	--	--
Hydroelectric Conventional	56	177.6	7	22.8	49	154.8
Wind	4	2,050.0	--	--	4	2,050.0
Solar Thermal and Photovoltaic	20	4,623.1	--	--	20	4,623.1
Wood and Wood-Derived Fuels	--	--	2	16.0	-2	-16.0
Geothermal	--	--	--	--	--	--
Other Biomass	2	19.0	--	--	2	19.0
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	11	1,337.5	1	1.0	10	1,336.5
Year 2024						
U.S. Total	18	5,187.6	39	6,664.4	-21	-1,476.8
Coal	--	--	9	3,318.0	-9	-3,318.0
Petroleum	--	--	4	32.4	-4	-32.4
Natural Gas	6	3,188.9	18	2,188.6	-12	1,000.3
Other Gases	--	--	--	--	--	--
Nuclear	--	--	1	1,122.0	-1	-1,122.0
Hydroelectric Conventional	--	--	7	3.4	-7	-3.4
Wind	7	895.5	--	--	7	895.5
Solar Thermal and Photovoltaic	3	1,100.0	--	--	3	1,100.0
Wood and Wood-Derived Fuels	--	--	--	--	--	--
Geothermal	--	--	--	--	--	--
Other Biomass	2	3.2	--	--	2	3.2
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	--	--	--	--	--	--
Years 2020-2024						
U.S. Total	1,612	124,717.3	367	52,206.0	1,245	72,511.3
Coal	1	17.0	98	28,480.6	-97	-28,463.6
Petroleum	9	10.4	53	3,850.6	-44	-3,840.2
Natural Gas	231	38,925.9	147	10,929.6	84	27,996.3
Other Gases	--	--	--	--	--	--
Nuclear	2	2,200.0	9	8,646.0	-7	-6,446.0
Hydroelectric Conventional	100	461.2	20	32.2	80	429.0
Wind	214	36,735.9	11	134.7	203	36,601.2
Solar Thermal and Photovoltaic	876	39,112.1	--	--	876	39,112.1
Wood and Wood-Derived Fuels	3	56.5	4	43.8	-1	12.7
Geothermal	2	42.0	--	--	2	42.0
Other Biomass	20	83.4	23	86.0	-3	-2.6
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	154	7,072.9	2	2.5	152	7,070.4

Notes: These data reflect plans as of December 31, 2019

Coal includes anthracite, bituminous, subbituminous, lignite, waste coal, coal synfuel, refined coal, and coal-derived synthesis gas.

Petroleum includes distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, petroleum coke (converted to liquid petroleum, see Technical Notes for conversion methodology), waste oil, synthetic gas, and propane.

Other Gases also includes blast furnace gas.

Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities.

Wood and wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor.

Other Biomass include municipal solid waste, landfill gas, sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases).

Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities.

Other Energy Sources include batteries, hydrogen, purchased steam, sulfur, tire-derived fuels and other miscellaneous energy sources.

Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator.

In the case of wind, solar and wave energy sites, the capacity for multiple generators is reported in a single generator record and is presented as a single generator in the generator count.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Table 4.6. Utility-Scale Capacity Additions, Retirements and Changes by Energy Source, 2019 (Count, Megawatts)

Energy Source	Generator Additions				Generator Retirements			
	Number of Generators	Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity	Number of Generators	Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity
Coal	--	--	--	--	59	14,352.1	12,895.1	12,914.9
Petroleum	24	49.1	46.6	42.7	53	423.6	353.0	361.5
Natural Gas	106	8,631.8	8,075.3	8,179.7	76	4,843.3	4,292.4	4,418.1
Other Gases	--	--	--	--	3	30.0	14.8	13.0
Nuclear	--	--	--	--	2	1,650.8	1,476.4	1,509.6
Hydroelectric Conventional	3	11.2	11.1	11.1	26	147.2	148.2	148.2
Wind	60	9,328.2	9,314.6	9,314.6	11	132.2	131.0	131.0
Solar Thermal and Photovoltaic	493	5,488.7	5,478.9	5,437.8	16	8.0	8.0	8.0
Wood and Wood-Derived Fuels	3	156.3	145.4	145.7	17	577.3	538.6	540.4
Geothermal	1	26.0	20.0	20.0	4	5.1	3.7	3.5
Other Biomass	19	16.9	16.7	16.7	54	202.7	172.6	175.4
Hydroelectric Pumped Storage	--	--	--	--	--	--	--	--
Other Energy Sources	39	210.0	193.1	200.4	3	42.3	29.7	24.0
Total	748	23,918.2	23,301.7	23,368.7	324	22,414.6	20,063.5	20,247.6

Energy Source	Other Changes to Existing Capacity		
	Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity
Coal	-1,944.1	-1,687.5	-2,199.7
Petroleum	-4,535.3	-4,118.2	-4,865.8
Natural Gas	-61.4	1,213.0	345.9
Other Gases	-1.1	-29.9	-20.9
Nuclear	257.9	162.5	-38.7
Hydroelectric Conventional	-86.6	-59.7	-53.1
Wind	41.9	-129.1	-136.9
Solar Thermal and Photovoltaic	-79.1	-25.6	89.4
Wood and Wood-Derived Fuels	90.8	73.1	85.0
Geothermal	22.4	94.8	170.2
Other Biomass	-150.0	-148.7	-150.0
Hydroelectric Pumped Storage	--	-51.9	-91.0
Other Energy Sources	58.6	65.8	65.7
Total	-6,386.0	-4,641.4	-6,799.9

Notes: Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal, coal synfuel, refined coal, and coal-derived synthesis gas. Petroleum includes distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, petroleum coke (converted to liquid petroleum, see Technical Notes for conversion methodology), waste oil, synthetic gas, and propane. Other Gases also includes blast furnace gas and other manufactured and waste gases derived from fossil fuels. Hydroelectric Conventional capacity includes conventional hydroelectric power excluding pumped storage facilities. Wood and wood-derived fuels include wood/wood waste solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids), wood waste liquids (red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids), and black liquor. Other Biomass include municipal solid waste, landfill gas, sludge waste, agricultural byproducts, other biomass solids, other biomass liquids, and other biomass gases (including digester gases, methane, and other biomass gases). Other Energy Sources include batteries, hydrogen, purchased steam, sulfur, tire-derived fuels and other miscellaneous energy sources. Capacity by energy source is based on the capacity associated with the energy source reported as the most predominant (primary) one, where more than one energy source is associated with a generator. In the case of some wind, solar and wave energy sites, the capacity for multiple generators is reported in a single generator record and is presented as a single generator in the generator count. Other Changes to Existing Capacity reflect uprates, derates, repowerings, and changes to previously reported generator capacity. * = Value is less than half of the smallest unit of measure.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Table 4.7.A. Net Summer Capacity of Utility Scale Units by Technology and by State, 2019 and 2018 (Megawatts)

Census Division and State	Renewable Sources		Fossil Fuels		Hydroelectric Pumped Storage		Other Energy Storage		Nuclear		All Other Sources		All Sources	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	6,027.9	5,862.1	24,227.5	23,024.1	1,797.4	1,797.4	63.1	28.7	3,323.5	4,003.5	48.0	48.0	35,487.4	34,763.8
Connecticut	457.7	412.6	7,866.2	7,290.6	29.4	29.4	1.6	1.6	2,073.1	2,073.1	26.0	26.0	10,454.0	9,833.3
Maine	2,222.0	2,346.5	2,495.3	2,478.8	0.0	0.0	16.2	16.2	0.0	0.0	22.0	22.0	4,755.5	4,863.5
Massachusetts	1,511.5	1,385.0	9,598.4	9,034.8	1,768.0	1,768.0	34.4	7.9	0.0	679.0	0.0	0.0	12,912.3	12,874.7
New Hampshire	956.9	928.1	2,289.9	2,289.9	0.0	0.0	0.0	0.0	1,250.4	1,251.4	0.0	0.0	4,497.2	4,469.4
Rhode Island	195.1	126.2	1,832.1	1,832.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,027.2	1,958.3
Vermont	684.7	663.7	145.6	97.9	0.0	0.0	10.9	3.0	0.0	0.0	0.0	0.0	841.2	764.6
Middle Atlantic	11,532.5	11,202.0	73,131.3	73,664.0	3,383.3	3,411.6	143.5	96.7	17,956.6	18,700.2	11.2	11.2	106,158.4	107,085.7
New Jersey	1,085.5	1,012.0	12,241.5	12,437.7	420.0	420.0	42.1	22.3	3,467.1	3,500.2	11.2	11.2	17,267.4	17,403.4
New York	7,487.2	7,335.6	26,731.2	26,951.1	1,411.3	1,408.6	53.0	26.0	5,396.3	5,403.0	0.0	0.0	41,079.0	41,124.3
Pennsylvania	2,959.8	2,854.4	34,158.6	34,275.2	1,552.0	1,583.0	48.4	48.4	9,093.2	9,797.0	0.0	0.0	47,812.0	48,558.0
East North Central	13,349.2	12,561.2	109,176.8	112,580.4	2,232.0	2,152.0	194.7	188.7	19,007.1	19,034.4	187.1	187.1	144,146.9	146,703.8
Illinois	5,397.1	4,782.3	27,059.7	29,055.3	0.0	0.0	132.7	132.7	11,582.4	11,582.4	78.0	78.0	44,249.9	45,630.7
Indiana	2,691.1	2,657.2	23,857.6	23,928.4	0.0	0.0	28.0	22.0	0.0	0.0	88.0	88.0	26,664.7	26,695.6
Michigan	3,065.1	2,830.6	20,069.2	20,614.2	2,232.0	2,152.0	1.0	1.0	4,089.6	4,122.2	0.0	0.0	29,456.9	29,720.0
Ohio	1,068.0	1,053.7	25,228.6	25,920.9	0.0	0.0	33.0	33.0	2,134.0	2,134.0	0.0	0.0	28,463.6	29,141.6
Wisconsin	1,127.9	1,237.4	12,961.7	13,061.6	0.0	0.0	0.0	0.0	1,201.1	1,195.8	21.1	21.1	15,311.8	15,515.9
West North Central	32,525.2	28,741.4	59,202.2	59,156.2	657.0	657.0	20.1	17.1	5,443.4	5,443.4	22.8	22.8	97,870.7	94,037.9
Iowa	9,964.4	8,433.3	9,842.6	9,806.4	0.0	0.0	1.1	1.1	601.4	601.4	0.0	0.0	20,409.5	18,842.2
Kansas	6,159.6	5,379.4	8,846.1	9,025.4	0.0	0.0	0.0	0.0	1,225.0	1,225.0	0.8	0.8	16,231.5	15,630.6
Minnesota	5,294.1	5,119.5	10,389.6	10,147.5	0.0	0.0	16.0	13.0	1,657.0	1,657.0	16.7	16.7	17,373.4	16,953.7
Missouri	1,579.0	1,579.0	17,625.1	17,650.0	657.0	657.0	2.2	2.2	1,190.0	1,190.0	0.0	0.0	21,053.3	21,078.2
Nebraska	2,499.5	2,011.8	6,196.3	6,202.0	0.0	0.0	0.0	0.0	770.0	770.0	0.0	0.0	9,465.8	8,983.8
North Dakota	4,048.3	3,741.6	4,601.4	4,633.6	0.0	0.0	0.0	0.0	0.0	0.0	5.3	5.3	8,655.0	8,380.5
South Dakota	2,980.3	2,476.8	1,701.1	1,691.3	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	4,682.2	4,168.9
South Atlantic	22,314.5	20,104.1	161,436.8	161,659.0	7,906.4	7,905.2	81.5	76.5	24,688.6	24,706.6	468.9	408.7	216,896.7	214,860.1
Delaware	50.9	47.5	3,321.5	3,330.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,372.4	3,377.9
District of Columbia	18.9	23.0	20.6	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.5	32.0
Florida	3,370.4	2,681.9	53,183.7	50,688.1	0.0	0.0	19.0	14.0	3,626.0	3,626.0	312.9	348.7	60,512.0	57,358.7
Georgia	4,603.2	4,013.8	26,100.8	27,050.6	1,863.4	1,862.2	1.0	1.0	4,061.0	4,061.0	0.0	0.0	36,629.4	36,988.6
Maryland	1,237.4	1,191.4	11,650.7	11,847.1	0.0	0.0	7.0	7.0	1,707.8	1,725.8	6.0	6.0	14,608.9	14,777.3
North Carolina	7,253.8	6,767.0	22,315.8	22,120.5	86.0	86.0	1.0	1.0	5,149.6	5,149.6	54.0	54.0	34,860.2	34,178.1
South Carolina	2,522.6	2,201.5	12,143.1	12,164.3	2,716.0	2,716.0	4.0	4.0	6,576.2	6,576.2	0.0	0.0	23,961.9	23,662.0
Virginia	2,227.0	2,150.9	18,912.7	20,674.9	3,241.0	3,241.0	0.0	0.0	3,568.0	3,568.0	96.0	96.0	28,044.7	29,634.8
West Virginia	1,030.3	1,027.1	13,787.9	13,774.1	0.0	0.0	49.5	49.5	0.0	0.0	0.0	0.0	14,867.7	14,850.7
East South Central	8,909.5	8,814.5	62,718.2	64,592.7	1,616.3	1,616.3	1.0	1.0	11,449.1	11,294.1	1.4	1.4	84,695.5	86,320.0
Alabama	4,119.0	4,086.4	19,610.1	20,660.4	0.0	0.0	1.0	1.0	5,525.4	5,370.4	0.0	0.0	29,255.5	30,118.2
Kentucky	1,247.6	1,245.4	18,247.9	18,874.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19,495.5	20,119.7
Mississippi	520.5	463.0	12,617.9	12,867.7	0.0	0.0	0.0	0.0	1,401.0	1,401.0	1.4	1.4	14,540.8	14,733.1
Tennessee	3,022.4	3,019.7	12,242.3	12,190.3	1,616.3	1,616.3	0.0	0.0	4,522.7	4,522.7	0.0	0.0	21,403.7	21,349.0
West South Central	42,975.7	38,640.3	138,761.3	139,035.5	286.0	286.0	131.7	99.8	8,910.7	8,910.7	548.6	512.5	191,614.0	187,484.8
Arkansas	1,642.7	1,697.1	11,281.0	11,219.7	28.0	28.0	12.0	0.0	1,817.8	1,817.8	0.0	0.0	14,781.5	14,762.6
Louisiana	615.2	683.2	21,262.2	20,056.9	0.0	0.0	0.5	0.5	2,132.9	2,132.9	329.6	288.5	24,340.4	23,162.0
Oklahoma	9,139.0	9,041.0	17,978.6	18,102.0	258.0	258.0	0.0	0.0	0.0	0.0	0.0	0.0	27,375.6	27,401.0
Texas	31,578.8	27,219.0	88,239.5	89,656.9	0.0	0.0	119.2	99.3	4,960.0	4,960.0	219.0	224.0	125,116.5	122,159.2
Mountain	28,373.6	27,308.9	60,068.1	62,239.7	778.8	778.8	54.3	40.6	3,937.0	3,937.0	123.7	123.0	93,335.5	94,428.0
Arizona	5,179.8	5,091.1	17,417.2	19,395.3	216.3	216.3	42.0	32.0	3,937.0	3,937.0	0.0	0.0	26,792.3	28,671.7
Colorado	5,077.3	4,950.1	10,932.9	11,063.0	562.5	562.5	10.5	5.0	0.0	0.0	9.1	9.1	16,592.3	16,589.7
Idaho	4,075.3	4,068.5	1,121.8	1,127.1	0.0	0.0	0.0	0.0	0.0	0.0	14.8	14.8	5,211.9	5,210.4
Montana	3,594.0	3,571.2	2,739.1	2,744.9	0.0	0.0	0.0	0.0	0.0	0.0	40.0	40.0	6,373.1	6,356.1
Nevada	4,109.7	3,665.4	7,821.6	7,821.6	0.0	0.0	0.0	0.0	0.0	0.0	6.5	6.5	11,937.8	11,493.5
New Mexico	2,804.5	2,473.7	5,962.9	5,953.3	0.0	0.0	1.8	3.6	0.0	0.0	0.7	0.0	8,769.9	8,430.6
Utah	1,648.0	1,602.5	7,303.3	7,360.2	0.0	0.0	0.0	0.0	0.0	0.0	40.2	40.2	8,991.5	9,002.9
Wyoming	1,885.0	1,886.4	6,769.3	6,774.3	0.0	0.0	0.0	0.0	0.0	0.0	12.4	12.4	8,666.7	8,673.1
Pacific Contiguous	69,232.0	67,907.2	46,057.2	47,614.6	4,121.1	4,225.9	263.7	242.8	3,403.0	3,403.0	106.3	106.3	123,183.3	123,499.8
California	32,062.2	30,889.7	37,000.4	38,546.7	3,807.1	3,911.9	252.5	231.6	2,240.0	2,240.0	106.3	106.3	75,468.5	75,926.2
Oregon	12,467.2	12,259.2	4,315.2	4,326.1	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	16,787.4	16,590.3
Washington	24,702.6	24,758.3	4,741.6	4,741.8	314.0	314.0	6.2	6.2	1,163.0	1,163.0	0.0	0.0	30,927.4	30,983.3
Pacific Noncontiguous	1,241.2	1,203.7	4,345.9	4,218.4	0.0	0.0	108.2	107.2	0.0	0.0	26.6	26.6	5,721.9	5,555.9
Alaska	538.6	538.2	2,174.6	2,160.1	0.0	0.0	47.2	46.2	0.0	0.0	0.0	0.0	2,760.4	2,744.5
Hawaii	702.6	665.5	2,171.3	2,058.3	0.0	0.0	61.0	61.0	0.0	0.0	26.6	26.6	2,961.5	2,811.4
U.S. Total	236,481.3	222,345.4	739,125.3	747,784.6	22,778.3	22,830.2	1,061.8	899.1	98,119.0	99,432.9	1,544.6	1,447.6	1,099,110.3	1,094,739.8

NM = Not meaningful due to large relative standard error.
Values are final.

NOTES:
Capacity from facilities with a total generator nameplate capacity less than 1 MW are excluded from this report. This exclusion may represent a significant portion of capacity for some technologies such as solar photovoltaic generation.
Concentrated Solar Power Energy Storage is included in 'Renewable sources'; it is not included in 'Other Energy Storage'

Sources: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report' and Form EIA-860M, 'Monthly Update to the Annual Electric Generator Report.'

Table 4.7.B. Net Summer Capacity Using Primarily Renewable Energy Sources and by State, 2019 and 2018 (Megawatts)

Census Division and State	Summer Capacity at Utility Scale Facilities														Small Scale Capacity		Capacity From Utility and Small Scale Facilities			
	Wind		Solar Photovoltaic		Solar Thermal		Conventional Hydroelectric		Biomass Sources		Geothermal		Total Renewable Sources		Estimated Solar Photovoltaic		Estimated Total Solar Photovoltaic		Estimated Total Solar	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	1,463.2	1,403.8	1,198.6	961.1	0.0	0.0	1,957.6	1,959.5	1,408.5	1,537.7	0.0	0.0	6,027.9	5,862.1	2,563.6	2,309.0	3,762.2	3,270.1	3,762.2	3,270.1
Connecticut	1.0	1.0	137.4	86.8	0.0	0.0	119.4	122.2	199.9	86.8	0.0	0.0	457.7	412.6	511.7	416.8	649.1	503.6	649.1	503.6
Maine	921.6	921.6	5.6	5.6	0.0	0.0	734.0	732.4	560.8	686.9	0.0	0.0	2,222.0	2,346.5	60.0	43.6	65.6	49.2	65.6	49.2
Massachusetts	105.7	96.1	854.6	736.6	0.0	0.0	266.3	267.0	284.9	285.3	0.0	0.0	1,511.5	1,385.0	1,587.9	1,568.6	2,442.5	2,305.2	2,442.5	2,305.2
New Hampshire	211.9	183.1	0.0	0.0	0.0	0.0	504.0	504.0	241.0	241.0	0.0	0.0	956.9	928.1	102.3	83.7	102.3	83.7	102.3	83.7
Rhode Island	72.8	51.8	79.5	31.6	0.0	0.0	2.7	2.7	40.1	40.1	0.0	0.0	195.1	126.2	182.3	93.5	261.8	125.1	261.8	125.1
Vermont	150.2	150.2	121.5	100.5	0.0	0.0	331.2	331.2	81.8	81.8	0.0	0.0	684.7	663.7	119.4	102.8	240.9	203.3	240.9	203.3
Middle Atlantic	3,453.3	3,363.3	1,420.1	1,087.1	0.0	0.0	5,471.6	5,473.2	1,187.5	1,278.4	0.0	0.0	11,532.5	11,202.0	3,567.3	2,997.6	4,987.4	4,084.7	4,987.4	4,084.7
New Jersey	7.6	7.6	856.7	764.8	0.0	0.0	12.3	12.3	208.9	227.3	0.0	0.0	1,085.5	1,012.0	1,668.2	1,448.5	2,524.9	2,213.3	2,524.9	2,213.3
New York	1,985.7	1,985.7	482.5	264.5	0.0	0.0	4,559.7	4,561.3	459.3	524.1	0.0	0.0	7,487.2	7,335.6	1,515.3	1,227.1	1,997.8	1,491.6	1,997.8	1,491.6
Pennsylvania	1,460.0	1,370.0	80.9	57.8	0.0	0.0	899.6	899.6	519.3	527.0	0.0	0.0	2,959.8	2,854.4	383.9	322.0	464.8	379.8	464.8	379.8
East North Central	10,764.6	9,985.9	539.5	462.5	0.0	0.0	884.6	859.9	1,160.5	1,252.9	0.0	0.0	13,349.2	12,561.2	644.9	392.0	1,184.4	854.5	1,184.4	854.5
Illinois	5,231.0	4,618.8	43.8	40.6	0.0	0.0	34.1	34.1	88.2	88.8	0.0	0.0	5,397.1	4,782.3	205.9	78.7	249.7	119.3	249.7	119.3
Indiana	2,305.8	2,309.8	244.3	216.2	0.0	0.0	66.2	60.4	70.8	70.8	0.0	0.0	2,691.1	2,657.2	96.2	73.9	340.5	290.1	340.5	290.1
Michigan	2,185.7	1,900.5	102.0	98.2	0.0	0.0	273.4	269.9	504.0	562.0	0.0	0.0	3,065.1	2,830.6	96.2	62.7	198.2	160.9	198.2	160.9
Ohio	718.4	718.4	109.0	83.6	0.0	0.0	101.9	101.9	138.7	148.8	0.0	0.0	1,068.0	1,053.7	161.6	119.5	270.6	203.1	270.6	203.1
Wisconsin	319.7	438.4	40.4	23.9	0.0	0.0	409.0	393.6	358.8	381.5	0.0	0.0	1,127.9	1,237.4	85.0	57.2	125.4	81.1	125.4	81.1
West North Central	27,804.1	24,120.4	1,004.6	828.1	0.0	0.0	3,295.5	3,293.7	421.0	499.2	0.0	0.0	32,525.2	28,741.4	439.7	331.1	1,444.3	1,159.2	1,444.3	1,159.2
Iowa	9,784.0	8,256.6	13.4	8.9	0.0	0.0	146.4	146.4	20.6	21.4	0.0	0.0	9,964.4	8,433.3	117.6	92.7	131.0	101.6	131.0	101.6
Kansas	6,133.4	5,359.2	10.2	4.2	0.0	0.0	7.0	7.0	9.0	9.0	0.0	0.0	6,159.6	5,379.4	25.3	18.6	35.5	22.8	35.5	22.8
Minnesota	3,847.2	3,750.5	894.6	733.9	0.0	0.0	205.9	205.9	346.4	429.2	0.0	0.0	5,294.1	5,119.5	82.2	60.9	976.8	794.8	976.8	794.8
Missouri	954.3	954.3	62.1	62.1	0.0	0.0	548.5	548.5	14.1	14.1	0.0	0.0	1,579.0	1,579.0	203.3	150.4	265.4	212.5	265.4	212.5
Nebraska	2,180.8	1,700.2	23.3	18.0	0.0	0.0	279.7	277.9	15.7	15.7	0.0	0.0	2,499.5	2,011.8	9.9	7.5	33.2	25.5	33.2	25.5
North Dakota	3,528.5	3,221.8	0.0	0.0	0.0	0.0	510.0	510.0	9.8	9.8	0.0	0.0	4,048.3	3,741.6	0.5	0.4	0.5	0.4	0.5	0.4
South Dakota	1,375.9	877.8	1.0	1.0	0.0	0.0	1,598.0	1,598.0	5.4	0.0	0.0	0.0	2,980.3	2,476.8	0.8	0.6	1.8	1.6	1.8	1.6
South Atlantic	1,086.3	1,086.3	9,705.4	7,463.1	0.0	0.0	7,187.2	7,224.4	4,335.6	4,330.3	0.0	0.0	22,314.5	20,104.1	2,130.0	1,691.3	11,835.3	9,154.4	11,835.3	9,154.4
Delaware	2.0	2.0	36.7	33.3	0.0	0.0	0.0	0.0	12.2	12.2	0.0	0.0	50.9	47.5	86.2	78.9	112.2	122.9	112.2	122.9
District of Columbia	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	12.0	23.0	0.0	0.0	18.9	23.0	66.5	50.9	73.4	50.9	73.4	50.9
Florida	0.0	0.0	2,142.8	1,399.5	0.0	0.0	43.5	54.5	1,184.1	1,227.9	0.0	0.0	3,370.4	2,681.9	492.0	281.7	2,634.8	1,681.2	2,634.8	1,681.2
Georgia	0.0	0.0	1,512.4	1,017.2	0.0	0.0	2,031.0	2,047.2	1,059.8	949.4	0.0	0.0	4,603.2	4,013.8	NM	166.7	NM	1,183.9	NM	1,183.9
Maryland	190.0	190.0	316.5	271.4	0.0	0.0	590.0	590.0	140.9	140.0	0.0	0.0	1,237.4	1,191.4	779.7	709.8	1,096.2	981.2	1,096.2	981.2
North Carolina	208.0	208.0	4,477.8	3,998.1	0.0	0.0	2,004.0	2,002.0	564.0	558.9	0.0	0.0	7,253.8	6,767.0	182.4	140.9	4,660.2	4,139.0	4,660.2	4,139.0
South Carolina	0.0	0.0	656.2	351.1	0.0	0.0	1,311.9	1,323.9	554.5	526.5	0.0	0.0	2,522.6	2,201.5	231.4	194.9	887.6	546.0	887.6	546.0
Virginia	0.0	0.0	556.1	392.5	0.0	0.0	866.0	866.0	804.9	892.4	0.0	0.0	2,227.0	2,150.9	100.6	60.7	656.7	453.2	656.7	453.2
West Virginia	686.3	686.3	0.0	0.0	0.0	0.0	340.8	340.8	3.2	0.0	0.0	0.0	1,030.3	1,027.1	9.3	6.8	9.3	6.8	9.3	6.8
East South Central	29.1	29.1	618.8	558.8	0.0	0.0	7,055.3	7,055.5	1,206.3	1,171.1	0.0	0.0	8,909.5	8,814.5	107.1	94.0	725.9	652.8	725.9	652.8
Alabama	0.0	0.0	194.1	194.1	0.0	0.0	3,291.8	3,292.0	633.1	600.3	0.0	0.0	4,119.0	4,086.4	NM	NM	NM	NM	NM	NM
Kentucky	0.0	0.0	26.1	26.3	0.0	0.0	1,146.9	1,146.9	74.6	72.2	0.0	0.0	1,247.6	1,245.4	30.4	23.2	56.5	49.5	56.5	49.5
Mississippi	0.0	0.0	218.1	160.6	0.0	0.0	0.0	0.0	302.4	302.4	0.0	0.0	520.5	463.0	9.2	6.9	227.3	167.5	227.3	167.5
Tennessee	29.1	29.1	180.5	177.8	0.0	0.0	2,616.6	2,616.6	196.2	196.2	0.0	0.0	3,022.4	3,019.7	58.8	56.7	239.3	234.5	239.3	234.5
West South Central	36,228.2	32,257.9	2,591.7	2,080.4	0.0	0.0	2,991.4	2,991.4	1,164.4	1,310.6	0.0	0.0	42,975.7	38,640.3	855.8	636.9	3,447.5	2,717.3	3,447.5	2,717.3
Arkansas	0.0	0.0	112.2	100.0	0.0	0.0	1,265.8	1,265.8	264.7	331.3	0.0	0.0	1,642.7	1,697.1	25.3	15.3	137.5	115.3	137.5	115.3
Louisiana	0.0	0.0	1.1	1.1	0.0	0.0	192.0	192.0	422.1	490.1	0.0	0.0	615.2	683.2	147.4	139.7	148.5	140.8	148.5	140.8
Oklahoma	8,168.7	8,070.7	30.5	30.5	0.0	0.0	863.6	863.6	76.2	76.2	0.0	0.0	9,139.0	9,041.0	12.6	7.3	43.1	37.8	43.1	37.8
Texas	28,059.5	24,187.2	2,447.9	1,948.8	0.0	0.0	670.0	670.0	401.4	413.0	0.0	0.0	31,578.8	27,219.0	670.5	474.7	3,118.4	2,423.5	3,118.4	2,423.5
Mountain	9,846.9	9,565.8	6,563.9	5,799.3	474.1	473.9	10,652.9	10,650.0	179.1	174.3	656.7	645.6	28,373.6	27,308.9	2,743.4	2,327.7	9,307.3	8,127.0	9,781.4	8,600.9
Arizona	267.3	267.3	1,865.3	1,776.8	295.6	295.4	2,720.9	2,720.9	30.7	30.7	0.0	0.0	5,179.8	5,091.1	1,433.4	1,251.3	3,298.7	3,028.1	3,594.3	3,323.5
Colorado	3,757.9	3,703.7	606.6	531.3	0.0	0.0	684.1	686.4	28.7	28.7	0.0	0.0	5,077.3	4,950.1	386.7	357.5	993.3	888.8	993.3	888.8
Idaho	970.4	970.4	242.0	240.0	0.0	0.0	2,764.2	2,764.2	88.7	83.9	10.0	10.0	4,075.3	4,068.5	44.2	26.3	286.2	266.3	286.2	266.3
Montana	791.3	783.5	17.0	17.0	0.0	0.0	2,782.7	2,767.7	3.0	3.0	0.0	0.0	3,594.0	3,571.2	17.8	13.9	34.8	30.9	34.8	30.9
Nevada	150.0	150.0	2,152.6	1,721.7	178.5	178.5	1,051.4	1,051.4	9.8	9.8	567.4	554.0	4,109.7	3,665.4	413.8	301.6	2,566.4	2,023.3	2,744.9	2,201.8
New Mexico	2,035.9	1,815.4	671.7	561.4	0.0	0.0	82.9	82.9	5.4	5.4	8.6	8.6	2,804.5	2,473.7	168.4	135.6	840.1	697.0	840.1	697.0
Utah	388.2	388.2	916.7	859.1	0.0	0.0	259.6	269.4	12.8	12.8	70.7	73.0	1,648.0	1,602.5	272.8	237.1	1,189.5	1,096.2	1,189.5	1,096.2
Wyoming	1,485.9	1,487.3	92.0	92.0	0.0	0.0	307.1	307.1	0.0	0.0	0.0	0.0	1,885.0	1,886.4	6.3	4.5	98.3	96.5	98.3	96.5
Pacific Contiguous	12,628.9	12,339.0	11,799.9	10,756.0	1,284.0	1,284.0	39,774.0	39,867.7	1,889.5	1,904.8	1,855.7	1,755.7	69,232.0	67,907.2	9,490.4	8,154.9	21,290.3	18,910.9	22,574.3	20,194.9
California	6,140.5	6,055.7	11,379.8	10,423.8	1,284.0	1,284.0	10,231.6	10,184.3	1,190.1	1,205.7	1,836.2	1,736.2	32,062.2	30,889.7	9,150.8	7,869.3	20,530.6	18,293.1	21,814.6	19,577.1
Oregon	3,415.3	3,210																		

Table 4.7.C. Net Summer Capacity of Utility Scale Units Using Primarily Fossil Fuels and by State, 2019 and 2018 (Megawatts)

Census Division and State	Natural Gas Fired Combined Cycle		Natural Gas Fired Combustion Turbine		Other Natural Gas		Coal		Petroleum Coke		Petroleum Liquids		Other Gases		Total Fossil Fuels	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	14,271.6	13,675.0	1,776.0	1,056.6	1,525.7	1,112.6	917.3	917.3	0.0	0.0	5,736.9	6,262.6	0.0	0.0	24,227.5	23,024.1
Connecticut	3,984.2	3,442.7	580.4	563.0	883.3	875.0	383.4	383.4	0.0	0.0	2,034.9	2,026.5	0.0	0.0	7,866.2	7,290.6
Maine	1,281.6	1,284.3	322.3	144.3	12.5	12.5	0.0	0.0	0.0	0.0	878.9	1,037.7	0.0	0.0	2,495.3	2,478.8
Massachusetts	5,960.6	5,902.8	857.1	333.1	204.3	199.7	0.0	0.0	0.0	0.0	2,576.4	2,599.2	0.0	0.0	9,598.4	9,034.8
New Hampshire	1,258.0	1,258.0	3.8	3.8	400.2	0.0	533.9	533.9	0.0	0.0	94.0	494.2	0.0	0.0	2,289.9	2,289.9
Rhode Island	1,787.2	1,787.2	12.4	12.4	25.4	25.4	0.0	0.0	0.0	0.0	7.1	7.1	0.0	0.0	1,832.1	1,832.1
Vermont	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	145.6	97.9	0.0	0.0	145.6	97.9
Middle Atlantic	34,419.5	31,831.4	7,894.3	7,909.1	14,142.8	14,505.4	11,183.7	13,776.7	11.6	11.6	5,363.5	5,499.1	115.9	130.7	73,131.3	73,664.0
New Jersey	8,579.0	8,529.9	2,844.3	2,826.3	68.5	46.9	463.0	609.0	11.6	11.6	246.1	385.0	29.0	29.0	12,241.5	12,437.7
New York	8,927.9	8,922.6	3,177.6	3,173.0	9,739.1	9,665.2	1,336.5	1,631.5	0.0	0.0	3,550.1	3,558.8	0.0	0.0	26,731.2	26,951.1
Pennsylvania	16,912.6	14,378.9	1,872.4	1,909.8	4,335.2	4,793.3	9,384.2	11,536.2	0.0	0.0	1,567.3	1,555.3	86.9	101.7	34,158.6	34,275.2
East North Central	21,711.8	21,661.3	26,681.0	26,654.4	5,615.4	5,563.6	51,488.3	54,908.0	247.6	247.6	2,347.8	2,452.6	1,084.9	1,092.9	109,176.8	112,580.4
Illinois	3,577.7	3,580.2	10,530.4	10,504.8	1,626.7	1,633.6	10,615.5	12,826.0	0.0	0.0	672.9	674.2	36.5	36.5	27,059.7	29,055.3
Indiana	3,866.0	3,836.0	3,287.3	3,353.4	741.0	730.0	15,245.7	15,291.4	0.0	0.0	98.3	98.3	619.3	619.3	23,857.6	23,928.4
Michigan	4,451.9	4,413.6	3,852.9	3,874.0	2,412.1	2,375.5	8,590.3	9,190.4	47.2	47.2	464.8	463.5	250.0	250.0	20,069.2	20,614.2
Ohio	7,037.8	7,020.4	5,636.7	5,559.2	205.5	185.1	11,496.0	12,246.0	142.0	142.0	531.5	581.1	179.1	187.1	25,228.6	25,920.9
Wisconsin	2,778.4	2,811.1	3,373.7	3,363.0	630.1	639.4	5,540.8	5,554.2	58.4	58.4	580.3	635.5	0.0	0.0	12,961.7	13,061.6
West North Central	7,019.1	6,640.9	11,587.5	11,737.3	3,748.6	3,807.2	32,957.1	33,054.1	32.0	39.5	3,849.5	3,868.8	8.4	8.4	59,202.2	59,156.2
Iowa	1,829.0	1,779.8	1,226.8	1,260.4	591.3	540.5	5,343.8	5,371.7	32.0	39.5	819.7	814.5	0.0	0.0	9,842.6	9,806.4
Kansas	266.0	266.0	2,158.1	2,156.8	1,185.6	1,367.9	4,678.5	4,670.2	0.0	0.0	557.9	564.5	0.0	0.0	8,846.1	9,025.4
Minnesota	2,496.0	2,172.0	2,544.8	2,667.9	401.2	381.6	4,180.5	4,157.9	0.0	0.0	767.1	768.1	0.0	0.0	10,389.6	10,147.5
Missouri	1,794.9	1,794.9	3,390.7	3,400.6	869.5	871.1	10,464.5	10,470.9	0.0	0.0	1,105.5	1,112.5	0.0	0.0	17,625.1	17,650.0
Nebraska	338.2	338.2	1,148.4	1,149.0	521.7	525.8	3,867.0	3,867.0	0.0	0.0	321.0	322.0	0.0	0.0	6,196.3	6,202.0
North Dakota	0.0	0.0	414.0	408.0	167.0	111.6	3,948.8	4,042.4	0.0	0.0	63.2	63.2	8.4	8.4	4,601.4	4,633.6
South Dakota	295.0	290.0	704.7	694.6	12.3	8.7	474.0	474.0	0.0	0.0	215.1	224.0	0.0	0.0	1,701.1	1,691.3
South Atlantic	61,366.0	59,181.2	32,167.0	31,914.2	7,250.4	7,334.2	51,483.1	53,994.3	142.8	142.8	8,892.5	8,957.3	135.0	135.0	161,436.8	161,659.0
Delaware	1,604.0	1,511.0	272.0	317.2	842.0	843.1	410.0	410.0	0.0	0.0	158.5	114.1	135.0	135.0	3,321.5	3,330.4
District of Columbia	0.0	0.0	20.6	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	9.0
Florida	31,717.2	29,345.7	7,825.7	7,759.2	2,503.2	2,419.2	7,782.0	7,804.0	59.0	59.0	3,296.6	3,301.0	0.0	0.0	53,183.7	50,688.1
Georgia	8,009.5	7,989.0	7,803.2	7,791.0	842.9	842.9	8,416.0	9,398.5	83.8	83.8	945.4	945.4	0.0	0.0	26,100.8	27,050.6
Maryland	2,709.1	2,849.1	2,084.2	1,899.9	1,416.1	1,494.2	4,270.0	4,327.0	0.0	0.0	1,171.3	1,276.9	0.0	0.0	11,650.7	11,847.1
North Carolina	5,373.2	5,068.0	6,050.4	6,045.1	1.0	0.0	10,389.2	10,504.8	0.0	0.0	502.0	502.6	0.0	0.0	22,315.8	22,120.5
South Carolina	3,185.0	3,185.0	2,772.2	2,757.9	950.0	546.0	4,769.0	5,212.0	0.0	0.0	466.9	463.4	0.0	0.0	12,143.1	12,164.3
Virginia	8,868.0	9,233.4	4,245.3	4,245.3	579.7	1,073.3	2,878.9	3,780.0	0.0	0.0	2,340.8	2,342.9	0.0	0.0	18,912.7	20,674.9
West Virginia	0.0	0.0	1,093.4	1,089.6	115.5	115.5	12,568.0	12,558.0	0.0	0.0	11.0	11.0	0.0	0.0	13,787.9	13,774.1
East South Central	21,772.2	21,746.2	12,678.3	12,626.1	4,285.8	4,592.8	23,855.4	25,490.8	0.0	0.0	106.7	117.0	19.8	19.8	62,718.2	64,592.7
Alabama	9,729.8	9,699.0	2,575.8	2,532.2	1,957.8	2,028.1	5,284.3	6,338.7	0.0	0.0	42.6	42.6	19.8	19.8	19,610.1	20,660.4
Kentucky	1,763.0	1,763.0	4,931.2	4,976.6	260.0	260.0	11,281.8	11,862.8	0.0	0.0	11.9	11.9	0.0	0.0	18,247.9	18,874.3
Mississippi	7,824.3	7,829.1	1,338.8	1,336.8	2,001.8	2,238.5	1,444.0	1,444.0	0.0	0.0	9.0	19.3	0.0	0.0	12,617.9	12,867.7
Tennessee	2,455.1	2,455.1	3,832.5	3,780.5	66.2	66.2	5,845.3	5,845.3	0.0	0.0	43.2	43.2	0.0	0.0	12,242.3	12,190.3
West South Central	61,694.7	60,239.5	14,548.7	14,419.5	30,540.5	30,856.3	30,119.1	31,564.1	878.9	954.7	169.1	175.6	810.3	825.8	138,761.3	139,035.5
Arkansas	4,609.8	4,603.4	702.8	702.8	796.0	796.0	5,163.4	5,105.3	0.0	0.0	9.0	12.2	0.0	0.0	11,281.0	11,219.7
Louisiana	8,654.2	7,474.6	2,415.1	2,349.6	6,090.1	6,057.6	2,837.1	2,833.7	815.1	890.9	43.2	43.1	407.4	407.4	21,262.2	20,056.9
Oklahoma	7,321.2	7,263.6	1,630.9	1,686.9	5,706.1	4,773.6	3,246.0	4,303.5	0.0	0.0	74.4	74.4	0.0	0.0	17,978.6	18,102.0
Texas	41,109.5	40,897.9	9,799.9	9,680.2	17,948.3	19,229.1	18,872.6	19,321.6	63.8	63.8	42.5	45.9	402.9	418.4	88,239.5	89,656.9
Mountain	22,545.0	22,510.8	9,137.3	8,625.6	3,540.9	3,832.4	24,339.5	26,765.5	52.0	52.0	349.9	349.9	103.5	103.5	60,068.1	62,239.7
Arizona	9,908.6	9,879.6	2,899.0	2,367.6	1,190.1	1,478.6	3,329.0	5,579.0	0.0	0.0	90.5	90.5	0.0	0.0	17,417.2	19,395.3
Colorado	3,249.5	3,249.5	2,538.0	2,568.1	639.0	639.0	4,340.0	4,440.0	0.0	0.0	166.4	166.4	0.0	0.0	10,932.9	11,063.0
Idaho	547.7	547.7	552.0	552.0	8.2	13.5	8.5	8.5	0.0	0.0	5.4	5.4	0.0	0.0	1,121.8	1,127.1
Montana	0.0	0.0	315.8	321.6	72.2	72.2	2,297.6	2,297.6	52.0	52.0	0.0	0.0	1.5	1.5	2,739.1	2,744.9
Nevada	5,445.0	5,445.0	1,185.6	1,185.6	444.6	444.6	740.4	740.4	0.0	0.0	6.0	6.0	0.0	0.0	7,821.6	7,821.6
New Mexico	1,470.2	1,465.0	957.0	956.9	847.7	843.4	2,640.0	2,640.0	0.0	0.0	48.0	48.0	0.0	0.0	5,962.9	5,953.3
Utah	1,830.0	1,830.0	536.3	520.2	328.2	328.2	4,581.0	4,654.0	0.0	0.0	27.8	27.8	0.0	0.0	7,303.3	7,360.2
Wyoming	94.0	94.0	153.6	153.6	10.9	12.9	6,403.0	6,406.0	0.0	0.0	5.8	5.8	102.0	102.0	6,769.3	6,774.3
Pacific Contiguous	25,908.9	25,897.1	12,009.9	12,066.7	5,445.2	6,959.0	1,982.0	1,982.0	20.0	17.0	469.8	471.4	221.4	221.4	46,057.2	47,614.6
California	19,901.3	19,878.6	11,156.9	11,213.5	5,189.2	6,703.0	57.0	57.0	20.0	17.0	454.6	456.2	221.4	221.4	37,000.4	38,546.7
Oregon	3,372.0	3,382.9	133.8	133.8	224.4	224.4	585.0	585.0	0.0	0.0	0.0	0.0	0.0	0.0	4,315.2	4,326.1
Washington	2,635.6	2,635.6	719.2	719.2	31.6	31.6	1,340.0	1,340.0	0.0	0.0	15.2	15.2	0.0	0.0	4,741.6	4,741.8
Pacific Noncontiguous	477.2	479.2	631.1	626.3	175.0	175.0	331.9	332.8	0.0	0.0	2,730.7	2,598.7	0.0	6.4	4,345.9	4,218.4
Alaska	477.2	479.2	631.1	626.3	175.0	175.0	151.9	152.8	0.0	0.0	739.4	726.8	0.0	0.0	2,174.6	2,160.1
Hawaii	0.0	0.0	0.0	0.0	0.0	0.0	180.0	180.0	0.0	0.0	1,991.3	1,871.9	0.0	6.4	2,171.3	2,058.3
U.S. Total	271,186.0	263,862.6	129,111.1	127,635.8	76,270.3	78,738.5	228,657.4	242,785.6	1,384.9	1,465.2	30,016.4	30,753.0	2,499.2	2,543.9	739,125.3	747,784.6

NM = Not meaningful due to large relative standard error.
Values are final.

NOTES:
Capacity from facilities with a total generator nameplate capacity less than 1 MW are excluded from this report. This exclusion may represent a significant portion of existing or planned capacity for some technologies such as solar photovoltaic generation.

Sources: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report' and Form EIA-860M, 'Monthly Update to the Annual Electric Generator Report.'

Table 4.08.A. Capacity Factors for Utility Scale Generators Primarily Using Fossil Fuels

Year/Month	Coal		Natural Gas						Petroleum							
			Combined Cycle		Gas Turbine		Steam Turbine		Internal Combustion		Steam Turbine		Gas Turbine		Internal Combustion	
	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor
Annual Data																
2009	312,091.2	64.2%	200,546.1	43.9%	117,120.3	6.8%	80,357.5	10.9%	2,360.1	6.6%	32,621.3	15.0%	19,812.2	1.7%	5,002.0	2.4%
2010	313,393.9	67.1%	202,404.4	44.3%	116,426.0	7.8%	80,233.7	11.1%	2,543.0	6.5%	29,871.2	13.6%	19,565.5	2.0%	5,016.0	2.1%
2011	314,056.1	62.8%	210,518.7	44.3%	119,144.1	7.9%	78,898.6	11.7%	2,822.5	8.4%	26,683.0	12.6%	18,397.7	1.3%	4,986.0	2.2%
2012	304,974.9	56.2%	217,938.2	52.2%	119,319.4	8.9%	74,200.2	13.3%	2,988.8	7.3%	22,483.7	13.7%	17,773.5	1.3%	4,942.5	2.0%
2013	302,604.4	59.4%	219,902.9	48.8%	123,025.6	8.3%	75,810.5	11.2%	2,996.2	8.8%	20,022.9	12.6%	17,224.1	0.9%	4,999.4	2.1%
2014	299,064.7	60.5%	224,183.2	48.6%	124,736.9	8.3%	75,049.1	10.3%	3,026.7	10.8%	18,057.0	13.0%	16,791.5	1.2%	5,011.3	2.1%
2015	286,082.7	54.3%	231,467.5	55.8%	123,444.3	9.8%	80,348.0	11.3%	3,507.8	11.9%	14,965.4	14.0%	16,122.8	1.3%	5,075.2	2.1%
2016	269,477.1	52.8%	236,442.8	55.4%	125,148.4	11.0%	81,225.1	12.3%	3,684.3	11.5%	13,993.7	12.2%	15,114.0	1.3%	5,082.8	2.3%
2017	259,930.2	53.1%	242,839.1	51.2%	125,806.6	9.6%	79,149.4	10.7%	4,225.5	11.6%	13,290.9	13.7%	14,275.3	1.0%	5,153.3	2.1%
2018	246,866.8	53.6%	254,403.3	55.0%	126,763.4	11.9%	76,177.8	12.6%	4,446.6	13.0%	13,300.1	14.2%	14,234.9	1.3%	5,289.7	1.9%
2019	235,089.3	47.5%	266,846.5	57.3%	128,832.5	11.3%	72,797.3	14.1%	4,848.3	15.3%	11,214.7	12.8%	14,009.7	1.0%	5,287.8	2.0%
Year 2017																
January	262,832.9	59.2%	238,604.9	47.1%	125,758.5	8.2%	79,997.2	5.0%	3,984.2	10.8%	13,545.9	11.5%	14,360.0	0.9%	5,165.1	2.3%
February	262,623.9	49.4%	238,711.5	44.7%	125,637.1	8.3%	79,997.2	4.6%	4,151.9	9.5%	13,545.9	10.9%	14,360.0	0.9%	5,162.5	1.9%
March	262,179.7	45.8%	239,783.7	44.8%	125,636.3	9.4%	79,980.6	7.6%	4,198.4	9.5%	13,545.9	13.7%	14,336.4	1.1%	5,153.8	2.2%
April	260,949.7	43.3%	239,783.7	42.6%	125,704.3	8.4%	79,618.6	9.0%	4,218.8	9.6%	13,545.9	10.5%	14,336.4	0.8%	5,159.8	1.8%
May	260,949.7	47.9%	242,325.8	45.6%	125,668.3	8.9%	79,584.1	9.4%	4,239.0	9.8%	13,545.9	16.0%	14,336.4	1.0%	5,158.8	1.9%
June	259,190.0	57.8%	242,355.4	55.5%	125,748.3	10.4%	78,791.5	14.1%	4,240.1	12.0%	13,110.9	16.4%	14,286.4	1.0%	5,149.4	2.0%
July	259,190.0	66.3%	244,634.3	66.3%	125,748.3	12.2%	78,791.5	20.4%	4,240.6	15.3%	13,110.9	17.0%	14,238.4	1.1%	5,149.0	2.0%
August	259,190.0	62.2%	245,481.9	64.9%	125,797.8	11.3%	78,697.5	16.0%	4,246.9	14.5%	13,110.9	15.5%	14,238.4	1.1%	5,137.2	2.2%
September	259,006.0	53.2%	245,481.9	55.4%	125,887.8	10.5%	78,645.7	13.2%	4,297.0	12.7%	13,110.9	14.6%	14,238.4	1.3%	5,144.8	2.3%
October	258,429.0	47.2%	245,521.9	48.1%	125,894.8	9.5%	78,643.7	12.5%	4,297.0	12.0%	13,110.9	12.0%	14,238.4	1.1%	5,148.9	2.1%
November	258,278.0	49.0%	245,521.9	45.8%	126,098.8	8.6%	78,551.6	7.6%	4,297.0	11.5%	13,110.9	12.8%	14,191.8	0.9%	5,144.3	1.9%
December	256,530.0	55.8%	245,520.9	52.3%	126,089.8	9.4%	78,543.2	9.0%	4,293.0	12.0%	13,110.9	13.5%	14,149.8	1.4%	5,165.9	2.2%
Year 2018																
January	251,730.8	64.0%	247,709.0	51.4%	126,362.3	11.7%	78,615.1	10.9%	4,280.9	11.8%	13,440.4	19.9%	14,336.6	3.5%	5,330.8	2.5%
February	250,522.8	49.1%	247,709.0	51.6%	126,189.1	9.3%	78,185.1	5.8%	4,292.9	12.0%	13,440.4	12.1%	14,336.6	0.8%	5,333.5	1.8%
March	249,781.8	43.8%	247,709.0	49.1%	126,170.5	10.3%	77,411.2	7.5%	4,288.5	11.9%	13,440.4	10.9%	14,336.6	0.9%	5,326.9	1.8%
April	248,603.8	41.5%	248,199.0	45.6%	126,338.5	10.5%	77,369.9	8.5%	4,372.4	10.9%	13,440.4	12.9%	14,336.6	1.0%	5,317.8	2.0%
May	248,603.8	46.7%	252,604.7	49.8%	126,690.5	11.3%	76,359.3	15.3%	4,372.4	12.0%	13,440.4	10.0%	14,336.6	1.1%	5,319.2	1.8%
June	245,407.8	58.0%	255,100.3	58.7%	126,881.1	12.4%	75,658.1	16.3%	4,362.4	13.1%	13,440.4	15.0%	14,166.6	1.4%	5,275.1	1.8%
July	245,407.8	63.8%	256,721.3	69.8%	126,878.6	16.3%	75,658.1	23.3%	4,369.0	18.3%	13,440.4	16.6%	14,166.6	1.5%	5,276.5	1.8%
August	245,407.8	63.6%	257,487.3	69.3%	127,267.4	15.0%	75,658.1	20.3%	4,594.6	16.9%	13,440.4	15.6%	14,166.6	1.3%	5,277.8	2.1%
September	245,113.4	55.3%	258,463.3	63.2%	127,146.3	13.8%	75,650.6	15.6%	4,594.3	13.8%	13,440.4	16.9%	14,166.6	1.3%	5,274.0	2.0%
October	244,837.5	48.5%	258,836.7	52.9%	127,104.0	11.6%	75,120.6	12.6%	4,595.0	12.4%	13,440.4	13.7%	14,166.6	1.1%	5,269.0	2.0%
November	244,426.5	53.2%	260,948.0	48.8%	126,977.7	10.5%	74,758.6	8.7%	4,613.6	11.7%	13,440.4	13.4%	14,154.6	1.1%	5,240.4	1.8%
December	242,785.6	55.9%	260,868.5	48.9%	127,108.3	9.1%	73,841.6	6.3%	4,613.6	11.0%	11,788.4	12.6%	14,154.6	1.0%	5,237.9	1.7%
Year 2019																
January	241,507.5	56.6%	261,918.1	54.6%	128,218.2	9.6%	73,728.3	8.4%	4,620.8	12.9%	11,347.1	12.8%	14,037.5	1.4%	5,285.8	2.0%
February	239,252.5	50.4%	261,918.1	55.8%	128,218.2	9.9%	73,730.3	6.9%	4,695.3	14.2%	11,347.1	12.5%	14,037.5	0.9%	5,287.8	1.9%
March	238,021.5	45.0%	261,601.1	51.0%	128,164.0	9.3%	73,188.3	9.3%	4,695.3	12.8%	11,347.1	11.8%	14,018.5	0.6%	5,287.4	1.7%
April	236,625.1	35.7%	264,436.4	45.8%	128,276.4	9.7%	73,191.0	10.9%	4,878.7	12.5%	11,201.1	10.9%	14,018.5	0.8%	5,283.2	1.7%
May	235,815.1	41.7%	265,631.1	49.2%	128,705.3	10.2%	73,191.0	13.7%	4,881.2	12.4%	11,201.1	16.4%	14,018.5	1.0%	5,290.0	1.9%
June	235,767.5	46.9%	268,823.5	59.9%	128,828.7	11.2%	72,899.9	16.7%	4,881.2	14.4%	11,201.1	15.6%	14,008.2	1.1%	5,289.2	1.9%
July	234,785.0	58.3%	269,658.1	70.5%	129,173.4	15.0%	72,853.9	24.9%	4,903.2	20.1%	11,201.1	17.5%	14,008.2	1.1%	5,293.9	2.1%
August	234,785.0	54.6%	269,658.1	71.6%	129,318.4	14.9%	72,853.9	26.1%	4,903.2	20.4%	11,201.1	16.7%	14,002.5	1.3%	5,292.1	2.2%
September	233,847.0	51.4%	269,658.1	64.2%	129,278.4	12.9%	72,853.9	19.8%	4,903.2	17.4%	11,134.1	14.4%	14,002.5	1.2%	5,292.6	2.4%
October	233,086.4	39.3%	269,110.5	54.5%	129,348.4	11.6%	72,211.9	14.6%	4,903.2	15.5%	11,134.1	8.8%	14,002.5	1.2%	5,292.1	2.3%
November	229,164.4	46.0%	269,670.1	52.2%	129,314.4	10.9%	72,038.9	8.7%	4,903.2	16.1%	11,134.1	7.6%	14,002.5	0.8%	5,292.9	2.0%
December	228,657.4	43.3%	269,766.0	57.4%	129,098.3	10.2%	70,909.4	8.4%	5,001.6	14.1%	11,134.1	8.6%	13,962.5	0.8%	5,267.4	2.1%

Values are final.

Time adjusted capacity for month rows is the summer capacity of generators in operation for the entire month; units that began operation during the month or that retired during the month are excluded. Time adjusted capacity for year rows is a time weighted average of the month rows.

Capacity factors are a comparison of net generation with available capacity. See the technical note for an explanation of how capacity factors are calculated.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report' and Form EIA-860M, 'Monthly Update to the Annual Electric Generator Report.'

Table 4.08.B. Capacity Factors for Utility Scale Generators Primarily Using Non-Fossil Fuels

Year/Month	Geothermal		Hydroelectric		Nuclear		Other Biomass		Other Gas		Solar				Wind		Wood	
	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor	Photovoltaic Time Adjusted Capacity	Photovoltaic Capacity Factor	Thermal Time Adjusted Capacity	Thermal Capacity Factor	Time Adjusted Capacity	Capacity Factor	Time Adjusted Capacity	Capacity Factor
Annual Data																		
2009	2,278.0	73.0%	78,500.4	39.6%	101,003.7	90.3%	4,183.9	65.0%	1,752.2	43.4%	81.9	20.0%	468.2	23.6%	28,996.9	28.1%	6,936.4	61.7%
2010	2,392.1	71.6%	78,810.3	37.5%	101,167.4	91.1%	4,298.7	64.2%	1,929.0	50.5%	206.8	20.2%	473.0	24.5%	35,702.6	29.7%	6,991.5	61.5%
2011	2,407.9	71.5%	78,564.7	45.8%	101,265.1	89.1%	4,469.8	64.2%	1,902.7	54.1%	537.0	19.0%	485.3	23.9%	42,019.2	32.1%	7,000.3	59.6%
2012	2,531.8	68.3%	78,296.6	39.6%	101,166.0	86.6%	4,639.7	63.3%	1,802.8	59.6%	1,527.1	20.4%	476.0	23.6%	49,458.0	31.8%	7,089.1	61.3%
2013	2,509.5	71.8%	78,873.5	38.8%	99,006.8	90.8%	4,949.7	62.3%	2,171.6	55.9%	3,525.2	24.5%	552.1	17.4%	59,175.6	32.4%	7,887.9	59.0%
2014	2,513.3	72.0%	79,582.8	37.2%	98,569.3	91.7%	5,114.6	62.7%	1,994.0	54.0%	6,555.6	25.6%	1,445.3	18.3%	60,587.8	34.0%	8,319.7	60.0%
2015	2,523.0	71.9%	79,650.8	35.7%	98,614.6	92.3%	5,104.5	62.6%	2,527.7	60.8%	9,521.6	25.5%	1,697.3	21.7%	67,106.2	32.2%	9,024.5	59.3%
2016	2,516.6	71.6%	79,806.0	38.2%	99,364.8	92.3%	5,099.5	62.7%	2,458.8	64.8%	14,161.4	25.0%	1,757.9	22.1%	74,162.7	34.5%	8,979.8	58.3%
2017	2,460.4	73.2%	79,698.8	43.0%	99,619.5	92.3%	5,125.6	61.8%	2,375.8	62.8%	21,940.9	25.6%	1,757.9	21.8%	83,355.6	34.6%	8,807.5	60.2%
2018	2,391.5	76.0%	79,771.9	41.9%	99,605.2	92.5%	5,059.0	61.8%	2,543.9	65.4%	27,143.3	25.1%	1,757.9	23.6%	89,228.5	34.6%	8,760.2	60.6%
2019	2,535.2	69.6%	79,838.0	41.2%	98,836.7	93.4%	4,786.5	62.5%	2,504.1	67.4%	31,840.8	24.3%	1,758.1	21.2%	97,564.8	34.3%	8,485.0	59.0%
Year 2017																		
January	2,511.1	74.9%	79,657.2	44.9%	99,609.9	98.7%	5,095.1	64.2%	2,375.8	63.8%	20,249.8	14.6%	1,757.9	7.3%	81,337.2	34.2%	8,748.6	61.4%
February	2,511.1	73.0%	79,657.2	44.6%	99,609.9	95.0%	5,097.3	63.2%	2,375.8	65.4%	20,603.7	18.6%	1,757.9	11.6%	81,713.0	40.2%	8,748.6	61.6%
March	2,451.1	73.8%	79,657.2	50.0%	99,609.9	87.8%	5,097.3	61.1%	2,375.8	64.8%	20,792.6	26.7%	1,757.9	22.9%	81,962.1	41.8%	8,741.6	60.0%
April	2,451.1	75.6%	79,660.1	51.3%	99,609.9	79.2%	5,105.7	60.0%	2,375.8	61.8%	21,177.9	29.6%	1,757.9	24.8%	83,041.4	42.4%	8,789.1	56.4%
May	2,451.1	71.0%	79,660.1	55.0%	99,609.9	82.8%	5,122.7	62.5%	2,375.8	58.1%	21,700.6	33.1%	1,757.9	30.9%	83,182.1	37.2%	8,796.6	55.0%
June	2,451.1	72.4%	79,660.1	53.3%	99,609.9	93.5%	5,126.7	62.8%	2,375.8	59.1%	22,006.1	35.4%	1,757.9	37.9%	83,313.5	33.4%	8,802.9	60.6%
July	2,451.1	74.9%	79,667.4	44.8%	99,628.9	96.2%	5,145.2	61.7%	2,375.8	58.9%	22,242.6	31.5%	1,757.9	25.3%	83,498.6	25.8%	8,802.9	62.1%
August	2,451.1	74.4%	79,614.2	37.1%	99,628.9	97.7%	5,147.3	62.0%	2,375.8	65.0%	22,356.4	29.9%	1,757.9	27.5%	83,980.6	22.2%	8,856.4	63.3%
September	2,451.1	75.1%	79,761.5	33.3%	99,628.9	95.0%	5,147.2	59.4%	2,375.8	61.8%	22,547.7	28.7%	1,757.9	29.1%	83,980.6	29.5%	8,856.4	58.6%
October	2,451.1	66.2%	79,797.5	29.8%	99,628.9	89.0%	5,147.2	58.2%	2,375.8	62.1%	22,762.8	25.2%	1,757.9	24.1%	84,229.8	38.7%	8,856.4	57.4%
November	2,451.1	73.5%	79,797.1	34.6%	99,628.9	92.9%	5,143.9	62.3%	2,375.8	65.1%	23,095.3	18.1%	1,757.9	10.3%	84,483.3	36.6%	8,856.4	61.2%
December	2,446.3	74.2%	79,794.4	37.5%	99,628.9	99.4%	5,129.5	63.9%	2,375.8	67.4%	23,660.0	15.6%	1,757.9	9.0%	85,431.2	34.2%	8,830.9	65.3%
Year 2018																		
January	2,387.5	75.3%	79,771.8	42.2%	99,730.6	100.6%	5,108.5	62.2%	2,543.9	66.2%	25,311.1	16.3%	1,757.9	10.0%	87,552.6	38.7%	8,813.0	65.3%
February	2,403.5	78.9%	79,771.8	46.4%	99,730.6	96.7%	5,083.1	64.6%	2,543.9	66.6%	25,968.4	20.9%	1,757.9	16.1%	88,563.2	38.8%	8,813.0	62.5%
March	2,382.2	76.8%	79,785.3	43.6%	99,730.6	90.3%	5,086.1	62.0%	2,543.9	63.3%	26,067.6	24.3%	1,757.9	19.2%	88,787.7	40.1%	8,780.5	61.7%
April	2,392.2	69.0%	79,792.3	48.9%	99,730.6	82.4%	5,086.1	60.9%	2,543.9	61.6%	26,591.3	29.7%	1,757.9	24.4%	88,789.2	41.3%	8,780.5	55.6%
May	2,392.2	77.7%	79,753.3	51.3%	99,730.6	90.7%	5,083.5	59.4%	2,543.9	63.2%	26,859.7	31.8%	1,757.9	32.9%	89,086.2	36.0%	8,761.5	58.0%
June	2,392.2	75.5%	79,753.8	48.1%	99,730.6	97.1%	5,006.9	63.0%	2,543.9	64.1%	27,291.3	34.9%	1,757.9	41.7%	89,078.2	38.4%	8,775.5	61.7%
July	2,392.2	77.0%	79,751.6	42.3%	99,730.6	97.7%	5,050.2	62.3%	2,543.9	65.8%	27,451.7	31.1%	1,757.9	30.1%	89,227.2	24.7%	8,767.2	63.7%
August	2,392.2	76.8%	79,751.6	37.1%	99,730.6	97.4%	5,042.5	62.6%	2,543.9	68.7%	27,590.1	30.5%	1,757.9	32.5%	89,387.5	29.8%	8,748.7	62.2%
September	2,392.2	77.1%	79,751.6	33.4%	99,277.9	90.3%	5,042.5	58.3%	2,543.9	67.2%	27,674.0	27.7%	1,757.9	34.8%	89,469.5	28.6%	8,748.7	58.5%
October	2,392.2	71.5%	79,753.6	32.9%	99,277.9	80.4%	5,041.4	61.0%	2,543.9	64.3%	27,989.5	22.4%	1,757.9	20.7%	89,941.8	31.5%	8,748.7	56.5%
November	2,392.2	77.3%	79,753.6	38.1%	99,432.9	89.3%	5,039.0	62.3%	2,543.9	67.4%	28,158.3	17.3%	1,757.9	13.3%	90,282.8	33.8%	8,694.6	60.4%
December	2,387.9	79.4%	79,870.8	38.4%	99,432.9	96.9%	5,038.6	63.2%	2,543.9	67.0%	28,690.2	13.7%	1,757.9	7.0%	90,534.1	34.8%	8,694.6	61.4%
Year 2019																		
January	2,527.5	73.9%	79,881.1	41.7%	99,440.4	99.6%	4,894.7	63.2%	2,509.0	68.2%	30,238.8	15.2%	1,758.1	8.4%	94,361.8	34.3%	8,716.6	62.0%
February	2,527.5	76.1%	79,883.6	42.6%	99,440.4	96.8%	4,894.7	62.3%	2,509.0	64.8%	30,911.4	17.7%	1,758.1	10.9%	95,284.6	35.2%	8,716.6	60.7%
March	2,527.5	75.6%	79,897.2	44.3%	99,440.4	88.0%	4,796.3	61.4%	2,509.0	61.6%	31,124.1	24.1%	1,758.1	19.8%	95,776.4	35.8%	8,565.9	57.6%
April	2,535.4	68.7%	79,897.2	48.4%	99,595.4	84.5%	4,785.1	59.9%	2,514.0	62.1%	31,355.0	28.4%	1,758.1	25.5%	96,608.9	41.5%	8,553.5	52.8%
May	2,535.4	71.1%	79,874.5	53.8%	98,921.8	90.8%	4,783.7	61.5%	2,514.0	67.6%	31,466.6	29.1%	1,758.1	25.7%	96,610.5	35.6%	8,538.5	54.1%
June	2,535.4	72.8%	79,878.4	48.8%	98,921.8	96.6%	4,764.2	64.2%	2,499.2	67.5%	31,528.4	32.9%	1,758.1	35.5%	96,840.0	31.8%	8,469.0	58.2%
July	2,535.4	72.9%	79,879.9	41.9%	98,921.8	98.1%	4,765.8	63.8%	2,499.2	68.5%	31,803.5	32.4%	1,758.1	31.4%	98,084.1	30.1%	8,498.4	61.4%
August	2,535.4	73.9%	79,776.1	38.0%	98,921.8	97.7%	4,765.9	64.4%	2,499.2	68.0%	32,079.8	31.0%	1,758.1	32.0%	98,359.7	27.0%	8,498.4	62.7%
September	2,535.4	74.9%	79,775.9	32.3%	98,119.0	93.1%	4,754.4	62.6%	2,499.2	72.4%	32,302.5	27.4%	1,758.1	24.3%	98,668.1	34.1%	8,409.1	59.2%
October	2,535.4	60.5%	79,772.0	30.8%	98,119.0	85.0%	4,754.4	61.5%	2,499.2	64.4%	32,556.1	23.3%	1,758.1	23.0%	99,662.8	37.1%	8,305.5	57.0%
November	2,535.4	53.3%	79,772.0	35.2%	98,119.0	90.8%	4,751.2	61.5%	2,499.2	71.6%	33,001.5	17.4%	1,758.1	11.3%	99,618.3	34.7%	8,305.5	60.2%
December	2,555.4	61.5%	79,772.0	36.2%	98,119.0	100.1%	4,735.4	63.7%	2,499.2	72.2%	33,658.4	12.8%	1,758.1	5.4%	100,729.8	34.8%	8,258.5	62.7%

Values are final.

Time adjusted capacity for month rows is the summer capacity of generators in operation for the entire month; units that began operation during the month or that retired during the month are excluded. Time adjusted capacity for year rows is a time weighted average of the month rows.

Capacity factors are a comparison of net generation with available capacity. See the technical note for an explanation of how capacity factors are calculated.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report' and Form EIA-860M, 'Monthly Update to the Annual Electric Generator Report.'

Table 4.08.C. Usage Factors for Utility Scale Storage Generators

Year/Month	Battery		Pumped Storage	
	Time Adjusted Capacity	Usage Factor	Time Adjusted Capacity	Usage Factor
Annual Data				
2013	126.7	0.7%	22,389.3	9.8%
2014	155.1	1.7%	22,477.9	10.2%
2015	206.8	3.6%	22,568.9	10.2%
2016	423.0	3.8%	22,752.7	11.2%
2017	632.8	6.8%	22,791.7	11.4%
2018	713.6	5.2%	22,815.4	10.8%
2019	949.8	5.4%	22,754.7	10.4%
Year 2017				
January	562.8	6.9%	22,753.4	10.2%
February	573.8	7.1%	22,753.4	8.0%
March	581.8	8.1%	22,753.4	8.5%
April	611.8	7.7%	22,753.4	9.5%
May	627.7	6.6%	22,810.4	11.7%
June	641.2	7.0%	22,810.4	14.2%
July	643.2	6.5%	22,810.4	16.9%
August	645.4	6.7%	22,810.4	16.2%
September	678.2	6.2%	22,810.4	12.9%
October	679.4	6.4%	22,810.4	10.2%
November	681.4	6.9%	22,810.4	9.0%
December	663.4	6.5%	22,810.4	9.1%
Year 2018				
January	643.7	5.2%	22,785.2	9.8%
February	663.5	5.1%	22,785.2	9.6%
March	667.1	5.2%	22,785.2	7.9%
April	681.1	5.0%	22,785.2	8.2%
May	690.6	5.2%	22,830.2	11.0%
June	696.1	4.9%	22,830.2	13.2%
July	742.1	5.6%	22,830.2	15.5%
August	740.1	5.6%	22,830.2	16.1%
September	746.4	5.6%	22,830.2	12.2%
October	748.9	5.0%	22,830.2	9.4%
November	768.9	5.3%	22,830.2	8.2%
December	770.7	5.1%	22,830.2	7.7%
Year 2019				
January	864.8	5.5%	22,721.3	9.3%
February	877.1	5.7%	22,721.3	9.2%
March	901.9	6.7%	22,721.3	8.3%
April	931.0	5.9%	22,721.3	10.2%
May	934.7	5.9%	22,721.3	11.8%
June	939.7	5.2%	22,778.3	11.7%
July	962.9	5.2%	22,778.3	15.1%
August	983.9	5.0%	22,778.3	13.7%
September	990.8	5.8%	22,778.3	12.4%
October	998.7	4.5%	22,778.3	8.3%
November	1,001.2	5.2%	22,778.3	7.2%
December	1,006.2	5.0%	22,778.3	7.8%

Values are final.

Time adjusted capacity for month rows is the summer capacity of generators in operation for the entire month; units that began operation during the month or that retired during the month are excluded. Time adjusted capacity for year rows is a time weighted average of the month rows.

Usage factors are a comparison of gross generation with available capacity. See the technical note for an explanation of how usage factors are calculated.

Sources: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report; U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report' and Form EIA-860M, 'Monthly Update to the Annual Electric Generator Report.'

Table 4.9.A. Total Capacity of Distributed and Dispersed Generators by Technology Type, 2009 through 2015 (Table Discontinued)

Year	Capacity (MW)										Number of Generators
	Internal Combustion	Combustion Turbine	Steam Turbine	Hydro	Wind	Photovoltaic	Storage	Other	Wind and Other	Total	
Distributed Generators											
2009	4,339.0	4,147.0	4,621.0	1,166.0	--	--	--	--	1,729.0	16,002.0	13,006
2010	886.8	186.0	109.9	97.4	98.9	236.3	--	372.7	--	1,988.0	15,630
2011	791.1	115.5	64.9	97.9	36.7	314.8	0.2	264.3	--	1,685.4	20,941
2012	756.1	105.8	60.2	119.9	252.9	543.7	15.2	324.4	--	1,990.6	28,252
2013	981.3	106.4	31.1	103.9	78.3	556.0	2.0	89.0	--	1,947.4	196,141
2014	813.8	81.3	12.9	108.2	33.7	692.0	7.2	101.0	--	1,855.5	203,099
2015	797.6	49.3	10.5	121.2	26.7	876.4	24.4	88.4	--	1,994.6	215,825
Dispersed Generators											
2009	9,751.0	329.0	204.0	81.0	--	--	--	--	108.0	10,475.0	13,928
2010	2,771.2	64.4	13.8	8.4	6.3	95.2	7.0	17.9	--	2,984.2	16,874
2011	2,916.9	40.3	14.6	6.0	3.2	2.7	8.0	7.9	--	2,999.6	14,123
2012	3,180.9	49.8	--	2.2	3.1	8.5	7.7	13.5	--	3,265.5	14,557
2013	3,249.7	159.8	17.0	1.9	4.5	21.6	8.7	25.8	--	3,489.0	17,929
2014	3,479.3	169.7	16.7	0.7	3.7	14.3	6.6	5.7	--	3,696.8	22,599
2015	3,160.9	199.1	16.7	0.7	4.7	17.6	7.2	5.7	--	3,412.6	23,665
Distributed and Dispersed Generators											
2009	14,090.0	4,476.0	4,825.0	1,247.0	--	--	--	--	1,837.0	26,477.0	26,934
2010	3,658.0	250.4	123.7	105.8	105.2	331.5	7.0	390.6	--	4,972.2	32,504
2011	3,708.0	155.8	79.5	103.9	39.9	317.5	8.2	272.2	--	4,685.0	35,064
2012	3,937.0	155.6	60.2	122.1	256.0	552.2	22.9	337.9	--	5,256.1	42,809
2013	4,231.0	266.2	48.1	105.8	82.8	577.6	10.7	114.8	--	5,436.4	214,070
2014	4,293.1	251.0	29.6	108.9	37.5	706.3	13.8	106.7	--	5,552.2	225,698
2015	3,958.5	248.5	27.2	121.9	31.4	893.9	31.6	94.1	--	5,407.1	239,490

Starting in 2013, the residential sector is now included and all net metering units are excluded.

Distributed and Dispersed generator data in 2005 include a significant number of generators reported by one respondent, which may be for residential applications.

Prior to 2010, data contains generators over and under 1 MW, from 2010 forward, data contains only generators under 1 MW.

Distributed generators are commercial and industrial generators which are connected to the grid. Dispersed generators are commercial and industrial generators which are not connected to the grid. Both types may be installed at or near a customer's site, or at other locations. They may be owned by either the customers of the distribution utility or by the utility. Other includes generators for which technology is not specified.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 4.9.B Total Capacity of Non Net Metered Distributed Generators by Technology Type and Sector, 2010 through 2019

Year	Generators by Technology and Sector						Total
	Residential	Commercial	Industrial	Transportation	Direct Connected		
Internal Combustion							
2010	--	--	--	--	--	--	886,800
2011	--	--	--	--	--	--	791,100
2012	--	--	--	--	--	--	756,100
2013	--	--	--	--	--	--	981,311
2014	--	--	--	--	--	--	813,847
2015	--	--	--	--	--	--	797,595
2016	46,974	679,239	223,037	--	69,217	--	1,018,467
2017	86,766	851,363	306,305	--	78,180	--	1,322,614
2018	69,428	909,278	336,970	--	91,159	--	1,406,835
2019	76,934	955,455	263,507	0.275	111,981	--	1,408,152
Combustion Turbine							
2010	--	--	--	--	--	--	186,000
2011	--	--	--	--	--	--	115,500
2012	--	--	--	--	--	--	105,800
2013	--	--	--	--	--	--	106,385
2014	--	--	--	--	--	--	81,325
2015	--	--	--	--	--	--	49,329
2016	0.233	62,127	24,415	--	2,728	--	89,503
2017	11,750	56,187	25,069	--	5,893	--	98,899
2018	0.070	75,151	24,568	--	3,488	--	103,277
2019	0.077	76,695	22,128	--	4,488	--	103,388
Steam Turbine							
2010	--	--	--	--	--	--	109,900
2011	--	--	--	--	--	--	64,900
2012	--	--	--	--	--	--	60,200
2013	--	--	--	--	--	--	31,050
2014	--	--	--	--	--	--	12,925
2015	--	--	--	--	--	--	10,531
2016	--	2,995	0.524	--	0.431	--	3,950
2017	1,250	1,920	1,254	--	0.431	--	4,855
2018	--	4,626	0.539	--	2,581	--	7,746
2019	--	8,439	0.539	--	2,581	--	11,559
Hydroelectric							
2010	--	--	--	--	--	--	97,400
2011	--	--	--	--	--	--	97,900
2012	--	--	--	--	--	--	119,900
2013	--	--	--	--	--	--	103,935
2014	--	--	--	--	--	--	108,235
2015	--	--	--	--	--	--	121,234
2016	6,140	39,930	8,533	--	101,146	--	155,749
2017	5,915	30,763	8,033	--	103,607	--	148,318
2018	5,422	36,048	5,503	--	113,592	--	160,565
2019	7,482	37,818	5,503	--	113,910	--	164,713
Wind							
2010	--	--	--	--	--	--	98,900
2011	--	--	--	--	--	--	36,700
2012	--	--	--	--	--	--	252,900
2013	--	--	--	--	--	--	78,299
2014	--	--	--	--	--	--	33,727
2015	--	--	--	--	--	--	26,658
2016	2,616	15,742	1,366	--	8,828	--	28,552
2017	2,632	16,453	1,044	--	8,988	--	29,117
2018	2,579	15,527	1,441	--	9,071	--	28,618
2019	2,437	15,707	1,452	--	9,918	--	29,514
Photovoltaic							
2010	--	--	--	--	--	--	236,300
2011	--	--	--	--	--	--	314,800
2012	--	--	--	--	--	--	543,700
2013	--	--	--	--	--	--	555,965
2014	--	--	--	--	--	--	692,034
2015	--	--	--	--	--	--	876,351
2016	80,577	388,911	132,970	--	112,922	--	715,380
2017	186,910	513,251	177,192	--	120,946	--	998,299
2018	289,151	594,877	188,874	--	126,793	--	1,199,698
2019	437,911	688,600	202,899	--	131,391	--	1,460,800
Storage							
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	0,200
2012	--	--	--	--	--	--	15,200
2013	--	--	--	--	--	--	1,950
2014	--	--	--	--	--	--	7,227
2015	--	--	--	--	--	--	24,443
2016	0.070	32,678	8,714	--	1,246	--	42,708
2017	3,916	42,884	12,271	--	1,444	--	60,515
2018	6,935	79,042	10,674	--	7,276	--	103,927
2019	14,308	113,788	15,519	--	15,929	--	159,544
Fuel Cell							
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	0.161	6,229	3,700	--	0.225	--	10,315
2017	0.167	7,953	6,336	--	0.625	--	15,081
2018	0.150	12,793	3,959	--	0.625	--	17,527
2019	0.150	19,943	3,601	--	0.625	--	24,319
Other							
2010	--	--	--	--	--	--	372,700
2011	--	--	--	--	--	--	264,300
2012	--	--	--	--	--	--	324,400
2013	--	--	--	--	--	--	89,000
2014	--	--	--	--	--	--	100,995
2015	--	--	--	--	--	--	88,423
2016	0.753	34,050	10,389	--	6,050	--	51,242
2017	1,139	33,093	12,729	--	4,950	--	51,911
2018	0.629	36,452	16,209	--	3,310	--	56,600
2019	0.464	37,306	14,954	--	3,579	--	56,303
Total							
2010	--	--	--	--	--	--	1,988,000
2011	--	--	--	--	--	--	1,685,400
2012	--	--	--	--	--	--	1,990,600
2013	--	--	--	--	--	--	1,947,394
2014	--	--	--	--	--	--	1,855,455
2015	--	--	--	--	--	--	1,994,564
2016	137,524	1,261,901	413,648	--	302,793	--	2,115,866
2017	300,445	1,553,867	550,233	--	325,064	--	2,729,609
2018	374,368	1,763,792	588,737	--	357,895	--	3,084,792
2019	539,763	1,953,751	530,102	0.275	394,402	--	3,418,292
Total Number of Generators							
2010	--	--	--	--	--	--	15,630
2011	--	--	--	--	--	--	20,941
2012	--	--	--	--	--	--	28,252
2013	--	--	--	--	--	--	196,141
2014	--	--	--	--	--	--	203,099
2015	--	--	--	--	--	--	215,825
2016	--	--	--	--	--	--	195,703
2017	--	--	--	--	--	--	215,889
2018	--	--	--	--	--	--	231,220
2019	--	--	--	--	--	--	251,357

Starting in 2016, Capacity is now collected by technology and sector.
Starting in 2013, the residential sector is now included and all net metering units are excluded.
Distributed generators are generators which are connected to the grid. They may be installed at or near a customer's site or at other locations. They may be owned by either the customers of the distribution utility or by the utility. Other includes generators for which technology is not specified.
Totals may not equal sum of components because of independent rounding.
Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 4.10. Net Metering Customers and Capacity by Technology Type, by End Use Sector, 2009 through 2019

Year	Capacity (MW)					Customers				
	Residential	Commercial	Industrial	Transportation	Total	Residential	Commercial	Industrial	Transportation	Total
Historical Data										
2009	N/A	N/A	N/A	N/A	N/A	88,205	7,365	919	--	96,489
Photovoltaic										
2010	697.890	517.861	243.051	--	1,458.802	137,618	11,897	1,225	--	150,740
2011	1,024.139	1,089.275	381.670	--	2,495.410	198,255	18,345	2,418	--	219,018
2012	1,542.226	1,741.821	395.328	--	3,679.630	294,437	27,611	1,317	--	323,365
2013	2,286.567	2,294.831	565.982	--	5,147.380	442,195	35,379	2,480	--	480,054
2014	3,452.987	2,933.122	710.719	--	7,096.828	642,276	43,335	3,131	--	688,742
2015	5,357.358	3,455.124	884.664	--	9,697.146	958,850	51,501	3,624	--	1,013,975
2016	7,487.643	3,975.813	1,078.607	--	12,542.064	1,321,277	60,456	4,391	--	1,386,124
2017	9,486.987	5,119.870	1,197.785	--	15,804.641	1,626,283	69,538	5,267	--	1,701,088
2018	11,356.711	6,173.324	1,378.863	--	18,908.896	1,911,892	78,912	5,844	--	1,996,648
2019	13,863.288	7,181.594	1,613.248	--	22,658.129	2,283,702	86,552	6,499	--	2,376,753
Storage										
2016	4.489	7.575	11.698	--	23.762	793	79	31	--	903
2017	13.276	15.356	12.328	--	40.960	2,316	137	34	--	2,487
2018	65.199	40.141	24.526	--	129.866	10,633	303	61	--	10,997
2019	153.282	48.397	40.441	--	242.120	24,007	427	93	--	24,527
Virtual PV (1 MW and over)										
2016	15.171	194.318	--	--	209.489	5,193	322	--	--	5,515
2017	11.115	287.440	2.000	--	300.555	3,611	535	2	--	4,148
2018	19.719	360.749	2.603	--	383.071	6,045	2,037	17	--	8,099
2019	19.883	401.179	4.212	--	425.274	5,939	2,164	22	--	8,125
Virtual PV (under 1 MW)										
2016	27.482	73.116	3.168	--	103.766	8,705	1,506	11	--	10,222
2017	42.005	129.547	5.136	--	176.689	11,337	2,372	17	--	13,726
2018	49.232	163.228	5.466	--	217.926	13,071	2,959	16	--	16,046
2019	57.609	223.409	6.472	--	287.489	14,814	3,744	18	--	18,576
Wind										
2010	83.797	26.106	6.392	--	116.295	3,467	583	37	--	4,087
2011	28.063	44.373	9.932	--	82.368	4,456	905	50	--	5,411
2012	33.484	74.620	17.495	--	125.599	4,796	1,143	48	--	5,987
2013	38.987	92.818	14.659	--	146.464	5,265	1,308	92	--	6,665
2014	37.918	101.622	25.426	--	164.966	5,379	1,351	94	--	6,824
2015	34.893	103.086	29.137	--	167.116	5,387	1,434	109	--	6,930
2016	37.030	108.726	41.454	--	187.210	5,759	1,470	113	--	7,342
2017	35.005	119.651	49.507	--	204.163	5,258	1,429	111	--	6,798
2018	33.625	133.856	52.386	--	219.867	5,368	1,452	110	--	6,930
2019	33.668	148.594	52.580	--	234.842	5,218	1,438	107	--	6,763
Other										
2010	11.455	34.752	24.835	--	71.042	767	271	56	--	1,094
2011	5.030	49.010	56.681	--	110.721	807	242	100	--	1,149
2012	7.539	65.821	83.170	--	156.530	862	314	122	--	1,298
2013	6.785	80.405	80.568	--	167.758	598	331	169	--	1,098
2014	7.633	102.797	98.277	--	208.707	857	397	201	--	1,455
2015	7.873	116.382	116.780	--	241.035	821	445	249	--	1,515
2016	7.952	155.889	149.608	--	313.449	862	592	325	--	1,779
2017	9.064	208.639	199.398	--	417.101	915	693	330	--	1,938
2018	6.351	258.601	241.416	--	506.368	692	826	347	--	1,865
2019	23.364	254.281	263.966	--	541.611	2,226	842	381	--	3,449
All Technologies										
2010	793.142	578.719	274.278	--	1,646.139	141,852	12,751	1,318	--	155,921
2011	1,057.232	1,182.658	448.283	--	2,688.173	203,518	19,492	2,568	--	225,578
2012	1,583.249	1,882.262	495.993	--	3,961.504	300,095	29,068	1,487	--	330,650
2013	2,332.339	2,468.054	661.209	--	5,461.602	448,058	37,018	2,741	--	487,817
2014	3,498.538	3,137.541	834.422	--	7,470.501	648,512	45,083	3,426	--	697,021
2015	5,400.124	3,674.592	1,030.581	--	10,105.297	965,058	53,380	3,982	--	1,022,420
2016	7,715.715	4,576.384	1,289.946	--	13,582.045	1,341,796	64,346	4,840	--	1,410,982
2017	9,584.177	5,865.147	1,453.826	--	16,903.148	1,647,404	74,567	5,727	--	1,727,698
2018	11,465.638	7,089.758	1,680.734	--	20,236.128	1,937,068	86,186	6,334	--	2,029,588
2019	13,997.811	8,209.056	1,940.478	--	24,147.345	2,311,899	94,740	7,027	--	2,413,666

N/A = Not Available.

Total customer count for the years 2007, 2009, and 2010 were revised based on requests from respondents.

Capacity and customer count was not collected by technology type before 2010.

Starting in 2013, there is no maximum capacity on installed units.

Starting in 2016, utilities have the option to report photovoltaic in DC or AC. Values have been converted to AC.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

**Table 4.11. Fuel-Switching Capacity of Operable Generators Reporting Natural Gas as the Primary Fuel, by Producer Type, 2019
(Megawatts, Percent)**

Producer Type	Total Net Summer Capacity of All Generators Reporting Natural Gas as the Primary Fuel	Fuel-Switchable Part of Total			
		Net Summer Capacity of Natural Gas-Fired Generators Reporting the Ability to Switch to Petroleum Liquids	Fuel Switchable Capacity as Percent of Total	Maximum Achievable Net Summer Capacity Using Petroleum Liquids	Fuel Switchable Net Summer Capacity Reported to Have No Factors that Limit the Ability to Switch to Petroleum Liquids
Electric Utilities	247,018.9	81,920.1	33.2%	77,263.5	16,088.7
Independent Power Producers, Non-Combined Heat and Power Plants	187,715.6	45,039.8	24.0%	42,366.4	7,776.7
Independent Power Producers, Combined Heat and Power Plants	24,782.0	4,000.7	16.1%	3,835.1	298.1
Electric Power Sector Subtotal	459,516.5	130,960.6	28.5%	123,465.0	24,163.5
Commercial Sector	2,247.5	918.8	40.9%	864.4	97.2
Industrial Sector	14,803.4	920.7	6.2%	885.2	89.2
All Sectors	476,567.4	132,800.1	27.9%	125,214.6	24,349.9

Notes: Petroleum liquids include distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, waste oil, and propane.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Table 4.12. Fuel-Switching Capacity of Operable Generators Reporting Petroleum Liquids as the Primary Fuel, by Producer Type, 2019 (Megawatts, Percent)

Producer Type	Total Net Summer Capacity of All Generators Reporting Petroleum Liquids as the Primary Fuel	Fuel-Switchable Part of Total		
		Net Summer Capacity of Petroleum Liquids-Fired Generators Reporting the Ability to Switch to Natural Gas	Fuel Switchable Capacity as Percent of Total	Maximum Achievable Net Summer Capacity Using Natural Gas
Electric Utilities	17,287.3	2,292.9	13.3%	2,273.8
Independent Power Producers, Non-Combined Heat and Power Plants	11,378.8	2,775.2	24.4%	1,911.6
Independent Power Producers, Combined Heat and Power Plants	246.8	--	0.0%	--
Electric Power Sector Subtotal	28,912.9	5,068.1	17.5%	4,185.4
Commercial Sector	856.7	5.9	0.7%	5.6
Industrial Sector	245.8	29.0	11.8%	25.0
All Sectors	30,015.4	5,103.0	17.0%	4,215.9

Notes: Petroleum liquids include distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, waste oil, and propane.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Table 4.13. Fuel-Switching Capacity of Operable Generators Reporting Natural Gas as the Primary Fuel, by Type of Prime Mover, 2019 (Megawatts, Percent)

Prime Mover Type	Number of Natural Gas-Fired Generators Reporting the Ability to Switch to Petroleum Liquids	Net Summer Capacity of Natural Gas-Fired Generators Reporting the Ability to Switch to Petroleum Liquids	Fuel Switchable Net Summer Capacity Reported to Have No Factors that Limit the Ability to Switch to Petroleum Liquids
Steam Generator	174	26,091.0	7,309.3
Combined Cycle	379	48,106.6	5,391.7
Internal Combustion	312	1,230.0	386.2
Gas Turbine	876	57,372.5	11,262.7
All Fuel Switchable Prime Movers	1,741	132,800.1	24,349.9

Notes: Petroleum liquids include distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, waste oil, and propane.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Table 4.14. Fuel-Switching Capacity of Operable Generators Reporting Natural Gas as the Primary Fuel,

by Year of Initial Commercial Operation, 2019 (Megawatts, Percent)

Year of Initial Commercial Operation	Number of Natural Gas-Fired Generators Reporting the Ability to Switch to Petroleum Liquids	Net Summer Capacity of Natural Gas-Fired Generators Reporting the Ability to Switch to Petroleum Liquids	Fuel Switchable Net Summer Capacity Reported to Have No Factors that Limit the Ability to Switch to Petroleum Liquids
Pre-1970	265	10,584.0	3,258.7
1970-1974	258	14,024.6	4,206.3
1975-1979	95	10,371.5	2,473.4
1980-1984	38	822.8	199.3
1985-1989	84	2,738.5	195.3
1990-1994	193	11,645.8	1,359.8
1995-1999	128	9,070.7	1,656.6
2000-2004	396	37,734.2	6,345.5
2005-2009	118	15,505.8	1,729.6
2010-2014	99	11,409.8	241.2
2015-2019	67	8,892.4	2,684.2
Total	1,741	132,800.1	24,349.9

Notes: Petroleum liquids include distillate fuel oil (all diesel and No. 1, No. 2, and No. 4 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil), jet fuel, kerosene, waste oil, and propane.

Source: U.S. Energy Information Administration, Form EIA-860, "Annual Electric Generator Report."

Chapter 5

Consumption of Fossil Fuels

Table 5.1.A. Coal: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	934,683	695,615	234,077	317	4,674
2010	979,684	721,431	249,814	314	8,125
2011	934,938	689,316	239,541	347	5,735
2012	825,734	615,467	205,295	307	4,665
2013	860,729	638,327	217,219	513	4,670
2014	853,634	624,235	224,568	202	4,629
2015	739,594	539,506	195,927	163	3,999
2016	677,371	496,192	178,047	111	3,021
2017	663,911	484,389	176,643	95	2,783
2018	636,213	473,617	159,976	87	2,534
2019	537,616	399,541	135,838	76	2,161
Year 2017					
January	63,460	46,708	16,471	11	270
February	47,985	35,491	12,240	9	245
March	48,840	35,655	12,926	9	250
April	44,279	31,403	12,656	6	214
May	50,897	37,373	13,294	6	224
June	58,852	43,744	14,881	6	221
July	69,769	51,971	17,560	7	230
August	65,761	48,954	16,574	7	227
September	54,713	39,390	15,098	8	218
October	50,015	36,190	13,591	7	227
November	50,882	35,778	14,873	8	222
December	58,457	41,733	16,479	9	236
Year 2018					
January	64,845	47,762	16,817	11	255
February	45,793	34,002	11,552	9	230
March	44,474	32,312	11,930	8	224
April	40,515	30,350	9,965	7	193
May	47,293	35,261	11,815	6	211
June	56,078	42,502	13,360	6	210
July	63,818	48,277	15,322	6	212
August	63,737	47,866	15,660	7	204
September	53,914	40,293	13,415	7	199
October	48,422	35,547	12,695	6	173
November	51,702	37,956	13,537	7	202
December	55,624	41,488	13,908	7	221
Year 2019					
January	55,834	41,306	14,305	8	214
February	45,025	33,349	11,471	8	197
March	43,974	31,664	12,133	9	168
April	33,353	24,495	8,691	6	161
May	40,015	30,285	9,547	6	178
June	44,218	33,558	10,482	4	174
July	55,863	42,319	13,345	5	193
August	52,348	39,741	12,412	5	190
September	47,188	35,453	11,554	6	175
October	37,431	27,149	10,119	6	157
November	41,907	30,453	11,274	6	173
December	40,461	29,769	10,505	7	180

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.1.B. Coal: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	20,507	0	3,935	1,481	15,091
2010	21,727	0	3,808	1,406	16,513
2011	21,532	0	3,628	1,321	16,584
2012	19,333	0	2,790	1,143	15,400
2013	18,350	0	2,416	843	15,090
2014	18,107	978	1,821	861	14,448
2015	16,632	1,032	1,980	635	12,985
2016	16,586	2,979	1,336	572	11,700
2017	14,667	2,802	1,158	515	10,192
2018	13,813	2,268	1,356	490	9,700
2019	12,397	2,062	1,161	443	8,731
Year 2017					
January	1,470	300	117	59	995
February	1,198	213	104	48	832
March	1,293	238	106	57	892
April	1,128	221	78	36	793
May	1,137	209	75	34	819
June	1,152	211	84	34	823
July	1,203	254	96	40	813
August	1,215	256	100	36	824
September	1,102	207	86	38	771
October	1,223	223	94	35	871
November	1,261	263	98	44	856
December	1,285	208	119	56	903
Year 2018					
January	1,434	237	144	65	987
February	1,285	216	126	51	892
March	1,254	202	119	49	885
April	1,095	188	100	40	767
May	1,081	173	106	33	769
June	1,081	184	107	30	759
July	1,078	189	105	34	750
August	1,064	181	103	35	745
September	1,061	183	97	38	743
October	984	159	72	35	718
November	1,167	173	141	40	813
December	1,229	182	135	40	872
Year 2019					
January	1,312	198	158	51	905
February	1,158	189	114	47	808
March	1,112	189	110	49	764
April	1,009	141	102	34	732
May	941	123	90	33	695
June	950	161	95	23	671
July	950	171	97	30	653
August	974	190	88	32	664
September	914	168	73	34	640
October	985	174	81	31	699
November	1,019	174	76	38	731
December	1,072	184	76	42	770

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920

Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.1.C. Coal: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	955,190	695,615	238,012	1,798	19,766
2010	1,001,411	721,431	253,621	1,720	24,638
2011	956,470	689,316	243,168	1,668	22,319
2012	845,066	615,467	208,085	1,450	20,065
2013	879,078	638,327	219,635	1,356	19,761
2014	871,741	625,212	226,389	1,063	19,076
2015	756,226	540,538	197,906	798	16,984
2016	693,958	499,172	179,383	683	14,720
2017	678,578	487,192	177,801	610	12,975
2018	650,027	475,885	161,332	577	12,233
2019	550,013	401,603	136,998	519	10,892
Year 2017					
January	64,930	47,008	16,588	71	1,264
February	49,183	35,705	12,344	58	1,077
March	50,132	35,893	13,032	66	1,142
April	45,407	31,624	12,735	42	1,007
May	52,034	37,582	13,370	39	1,043
June	60,004	43,955	14,965	40	1,044
July	70,972	52,225	17,656	47	1,043
August	66,976	49,209	16,673	43	1,050
September	55,815	39,596	15,184	45	989
October	51,239	36,413	13,686	42	1,098
November	52,143	36,042	14,971	52	1,078
December	59,742	41,940	16,598	66	1,139
Year 2018					
January	66,279	47,999	16,961	76	1,242
February	47,079	34,219	11,679	59	1,122
March	45,728	32,513	12,049	57	1,109
April	41,610	30,538	10,065	47	960
May	48,374	35,435	11,921	39	979
June	57,159	42,687	13,467	36	969
July	64,895	48,467	15,427	40	962
August	64,801	48,047	15,763	42	949
September	54,975	40,475	13,512	45	943
October	49,406	35,706	12,768	42	891
November	52,868	38,129	13,677	47	1,015
December	56,853	41,670	14,043	47	1,093
Year 2019					
January	57,146	41,504	14,463	59	1,119
February	46,183	33,539	11,586	54	1,005
March	45,086	31,853	12,243	58	932
April	34,362	24,636	8,793	40	893
May	40,956	30,408	9,637	38	873
June	45,168	33,720	10,577	27	845
July	56,813	42,490	13,442	35	846
August	53,322	39,931	12,500	37	854
September	48,102	35,621	11,628	40	814
October	38,416	27,323	10,200	37	856
November	42,925	30,627	11,350	44	904
December	41,533	29,952	10,581	49	950

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.1.D. Coal: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	18,240,611	13,744,178	4,390,596	7,007	98,829
2010	19,196,315	14,333,496	4,709,686	6,815	146,318
2011	18,074,298	13,551,416	4,399,144	7,263	116,475
2012	15,867,141	11,995,971	3,767,011	6,383	97,775
2013	16,509,468	12,421,537	3,981,216	9,444	97,270
2014	16,472,004	12,217,628	4,154,134	4,344	95,898
2015	14,167,878	10,456,910	3,624,869	3,443	82,656
2016	12,979,911	9,641,625	3,274,103	2,293	61,889
2017	12,606,527	9,328,961	3,219,833	1,914	55,820
2018	12,037,444	9,041,357	2,944,321	1,736	50,029
2019	10,166,224	7,623,196	2,498,944	1,509	42,575
Year 2017					
January	1,200,949	894,562	300,722	238	5,428
February	907,774	677,464	225,239	194	4,876
March	934,820	690,256	239,313	187	5,064
April	849,821	613,913	231,356	117	4,435
May	970,719	724,208	241,926	112	4,473
June	1,125,322	850,061	270,677	127	4,458
July	1,336,227	1,009,439	322,063	148	4,577
August	1,249,577	943,848	301,025	137	4,567
September	1,029,569	752,508	272,541	157	4,363
October	941,498	695,389	241,428	139	4,542
November	950,247	676,718	268,997	162	4,370
December	1,110,004	800,595	304,546	195	4,667
Year 2018					
January	1,244,183	925,236	313,697	231	5,019
February	861,400	642,512	214,188	184	4,516
March	843,941	615,379	223,981	162	4,419
April	764,142	577,004	183,171	133	3,833
May	897,675	675,299	218,106	121	4,149
June	1,069,511	819,784	245,472	114	4,140
July	1,211,799	922,838	284,640	123	4,199
August	1,208,987	915,915	288,894	135	4,044
September	1,014,778	767,264	243,419	138	3,958
October	907,352	675,385	228,441	117	3,409
November	965,757	716,357	245,287	139	3,973
December	1,047,918	788,385	255,025	138	4,371
Year 2019					
January	1,058,823	786,243	268,166	166	4,248
February	838,849	624,443	210,371	154	3,880
March	828,126	600,395	224,131	185	3,415
April	629,315	466,253	159,689	123	3,250
May	763,488	588,629	171,298	105	3,456
June	829,511	636,161	189,866	74	3,410
July	1,063,467	810,341	249,251	98	3,778
August	991,849	759,025	229,009	98	3,717
September	901,131	683,364	214,211	117	3,439
October	705,109	520,523	181,422	118	3,046
November	792,687	583,324	205,856	126	3,380
December	763,869	564,494	195,673	146	3,556

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.1.E. Coal: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	462,674	0	90,867	32,651	339,156
2010	490,931	0	90,184	30,725	370,022
2011	479,822	0	84,855	28,056	366,911
2012	420,923	0	58,275	23,673	338,975
2013	401,108	0	47,677	18,535	334,897
2014	391,550	18,332	37,139	18,805	317,274
2015	356,895	18,640	37,815	13,483	286,956
2016	342,370	51,590	29,330	11,736	249,714
2017	297,521	48,745	24,682	10,284	213,810
2018	278,277	38,513	28,829	9,719	201,217
2019	247,251	33,559	25,686	8,571	179,436
Year 2017					
January	29,761	5,162	2,524	1,194	20,883
February	24,175	3,662	2,172	966	17,375
March	26,114	4,069	2,292	1,125	18,627
April	23,166	3,834	1,753	720	16,859
May	23,095	3,697	1,703	677	17,018
June	23,522	3,737	1,779	678	17,327
July	24,291	4,509	2,038	813	16,931
August	24,587	4,500	2,062	710	17,315
September	22,578	3,663	1,898	748	16,269
October	24,856	3,851	2,040	659	18,307
November	25,263	4,533	1,992	869	17,869
December	26,112	3,527	2,428	1,125	19,031
Year 2018					
January	29,072	4,032	3,117	1,353	20,569
February	25,883	3,681	2,508	1,019	18,675
March	25,351	3,449	2,553	979	18,371
April	22,087	3,256	2,109	800	15,923
May	21,807	3,009	2,249	633	15,916
June	21,792	3,174	2,288	596	15,734
July	21,795	3,202	2,298	663	15,632
August	21,520	3,063	2,255	691	15,512
September	21,039	3,042	1,864	741	15,392
October	19,687	2,697	1,579	682	14,730
November	23,428	2,861	3,081	784	16,702
December	24,814	3,047	2,929	778	18,060
Year 2019					
January	26,508	3,253	3,590	997	18,667
February	23,131	3,102	2,419	931	16,680
March	22,497	3,035	2,448	976	16,038
April	20,419	2,310	2,280	666	15,164
May	18,923	2,002	2,074	622	14,226
June	18,937	2,665	2,087	418	13,767
July	18,827	2,837	2,047	572	13,371
August	19,329	3,116	1,994	610	13,609
September	18,124	2,675	1,600	658	13,192
October	19,297	2,778	1,830	593	14,096
November	20,081	2,812	1,672	716	14,882
December	21,177	2,974	1,646	813	15,743

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; synthetic coal and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.1.F. Coal: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	18,703,284	13,744,178	4,481,463	39,658	437,985
2010	19,687,246	14,333,496	4,799,870	37,540	516,341
2011	18,554,120	13,551,416	4,483,999	35,319	483,385
2012	16,288,063	11,995,971	3,825,286	30,056	436,750
2013	16,910,576	12,421,537	4,028,894	27,979	432,167
2014	16,863,554	12,235,960	4,191,273	23,149	413,173
2015	14,524,773	10,475,551	3,662,685	16,926	369,612
2016	13,322,281	9,693,215	3,303,433	14,029	311,604
2017	12,904,048	9,377,705	3,244,514	12,198	269,630
2018	12,315,720	9,079,870	2,973,150	11,455	251,245
2019	10,413,475	7,656,755	2,524,630	10,080	222,011
Year 2017					
January	1,230,710	899,723	303,245	1,432	26,310
February	931,949	681,127	227,411	1,160	22,251
March	960,934	694,325	241,606	1,312	23,691
April	872,987	617,747	233,109	837	21,294
May	993,814	727,905	243,630	790	21,490
June	1,148,844	853,799	272,456	804	21,785
July	1,360,518	1,013,948	324,101	961	21,508
August	1,274,165	948,348	303,087	847	21,883
September	1,052,147	756,171	274,439	905	20,632
October	966,354	699,240	243,468	798	22,849
November	975,510	681,251	270,989	1,031	22,239
December	1,136,115	804,122	306,975	1,320	23,698
Year 2018					
January	1,273,255	929,268	316,814	1,585	25,589
February	887,284	646,193	216,696	1,203	23,191
March	869,293	618,828	226,534	1,141	22,789
April	786,229	580,260	185,280	933	19,756
May	919,483	678,308	220,355	754	20,065
June	1,091,302	822,958	247,760	710	19,874
July	1,233,595	926,040	286,938	786	19,831
August	1,230,507	918,977	291,149	825	19,556
September	1,035,817	770,306	245,282	879	19,350
October	927,039	678,082	230,020	799	18,139
November	989,185	719,218	248,368	923	20,675
December	1,072,732	791,432	257,954	916	22,431
Year 2019					
January	1,085,331	789,496	271,757	1,163	22,916
February	861,980	627,545	212,790	1,085	20,561
March	850,624	603,430	226,579	1,161	19,453
April	649,735	468,563	161,969	788	18,414
May	782,410	590,631	173,372	726	17,682
June	848,448	638,826	191,954	492	17,177
July	1,082,295	813,178	251,298	669	17,149
August	1,011,178	762,141	231,002	708	17,326
September	919,255	686,039	215,811	775	16,630
October	724,406	523,302	183,252	710	17,142
November	812,768	586,136	207,528	842	18,262
December	785,045	567,469	197,319	959	19,299

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.2.A. Petroleum Liquids: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Thousand Barrels)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	43,562	31,847	9,880	184	1,652
2010	40,103	30,806	8,278	164	855
2011	27,326	20,844	5,633	133	716
2012	22,604	17,521	4,110	272	702
2013	23,231	16,827	5,494	328	582
2014	31,531	19,652	10,689	451	739
2015	28,925	18,562	9,473	249	641
2016	22,405	16,137	5,624	108	536
2017	21,696	15,567	5,461	191	476
2018	28,614	18,345	9,467	269	534
2019	20,836	15,677	4,464	251	444
Year 2017					
January	1,901	1,410	425	20	45
February	1,536	1,137	347	12	40
March	1,677	1,342	281	15	38
April	1,508	1,173	288	10	37
May	1,711	1,285	376	15	36
June	1,742	1,296	398	13	35
July	1,600	1,179	371	16	34
August	1,704	1,260	392	18	35
September	1,633	1,205	376	14	39
October	1,706	1,325	328	13	40
November	1,617	1,183	374	15	45
December	3,360	1,772	1,505	31	52
Year 2018					
January	9,468	4,469	4,861	66	72
February	1,451	1,118	270	14	49
March	1,497	1,096	348	12	42
April	1,601	1,169	383	15	34
May	1,863	1,340	463	18	43
June	1,895	1,378	464	18	35
July	1,753	1,216	454	27	56
August	1,870	1,295	516	24	35
September	1,863	1,401	411	18	33
October	1,814	1,368	390	16	40
November	1,799	1,281	452	22	45
December	1,740	1,216	455	20	49
Year 2019					
January	2,506	1,672	755	32	46
February	1,482	1,099	327	15	42
March	1,476	1,159	263	16	38
April	1,417	1,046	313	15	44
May	1,702	1,305	346	17	33
June	1,747	1,369	328	17	33
July	1,818	1,328	436	24	30
August	1,868	1,473	340	21	34
September	1,669	1,305	302	27	35
October	1,709	1,305	347	23	34
November	1,626	1,228	339	23	37
December	1,816	1,388	369	22	37

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.2.B. Petroleum Liquids: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Barrels)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	8,128	0	1,301	293	6,534
2010	4,866	0	1,086	212	3,567
2011	3,826	0	1,004	168	2,654
2012	3,097	0	992	122	1,984
2013	3,456	0	1,050	498	1,908
2014	3,099	64	1,170	216	1,650
2015	3,142	62	1,155	282	1,643
2016	2,277	68	245	245	1,719
2017	2,012	72	220	238	1,482
2018	2,614	103	354	350	1,807
2019	2,162	71	226	419	1,446
Year 2017					
January	198	12	37	36	113
February	136	8	17	23	87
March	151	4	8	26	113
April	141	3	10	12	117
May	137	3	12	14	107
June	120	5	13	10	92
July	117	4	12	13	89
August	119	3	10	14	91
September	134	4	18	11	102
October	143	4	16	13	110
November	242	4	19	19	200
December	373	18	47	46	262
Year 2018					
January	701	58	132	109	402
February	179	4	12	25	138
March	156	3	13	21	118
April	136	3	12	17	104
May	147	4	18	16	109
June	162	5	14	15	128
July	156	3	11	28	114
August	143	4	12	23	104
September	130	7	15	15	93
October	190	5	16	16	153
November	228	3	20	30	174
December	287	3	80	35	169
Year 2019					
January	404	18	42	58	287
February	195	9	22	30	135
March	160	5	18	29	108
April	143	4	16	17	106
May	228	5	16	120	86
June	115	3	16	12	83
July	110	3	12	24	71
August	124	5	11	23	84
September	138	5	20	28	86
October	140	5	18	21	96
November	249	4	17	32	195
December	157	5	16	26	109

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.2.C. Petroleum Liquids: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Barrels)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	51,690	31,847	11,181	477	8,185
2010	44,968	30,806	9,364	376	4,422
2011	31,152	20,844	6,637	301	3,370
2012	25,702	17,521	5,102	394	2,685
2013	26,687	16,827	6,544	826	2,490
2014	34,630	19,716	11,859	667	2,389
2015	32,067	18,624	10,629	531	2,283
2016	24,682	16,205	5,869	352	2,255
2017	23,708	15,640	5,681	429	1,958
2018	31,228	18,448	9,820	619	2,341
2019	22,998	15,748	4,690	670	1,890
Year 2017					
January	2,099	1,422	462	56	158
February	1,672	1,146	364	35	127
March	1,828	1,346	290	41	151
April	1,650	1,176	298	22	154
May	1,848	1,288	388	29	143
June	1,862	1,301	411	23	127
July	1,717	1,183	383	29	123
August	1,823	1,263	402	33	125
September	1,768	1,208	394	24	141
October	1,849	1,329	344	26	150
November	1,860	1,187	394	34	245
December	3,734	1,790	1,552	78	314
Year 2018					
January	10,169	4,527	4,993	175	474
February	1,630	1,122	282	39	187
March	1,653	1,099	361	33	160
April	1,738	1,172	395	32	138
May	2,010	1,343	480	34	152
June	2,057	1,383	478	33	164
July	1,909	1,219	465	55	170
August	2,012	1,298	528	46	140
September	1,993	1,407	426	34	127
October	2,003	1,373	406	31	193
November	2,027	1,284	472	52	219
December	2,027	1,220	534	55	218
Year 2019					
January	2,911	1,691	797	90	333
February	1,678	1,108	349	44	177
March	1,635	1,164	281	44	145
April	1,560	1,049	329	32	150
May	1,929	1,311	362	137	119
June	1,862	1,372	344	29	117
July	1,928	1,332	448	48	101
August	1,992	1,478	352	44	118
September	1,807	1,310	321	54	121
October	1,848	1,309	365	44	130
November	1,875	1,231	356	55	232
December	1,972	1,393	385	48	146

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.2.D. Petroleum Liquids: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	266,508	196,346	59,277	1,101	9,784
2010	244,114	188,987	49,042	970	5,115
2011	163,954	125,755	33,166	801	4,233
2012	134,956	105,179	24,081	1,618	4,078
2013	139,139	101,217	32,504	2,038	3,380
2014	188,814	118,226	63,488	2,765	4,335
2015	172,884	111,808	55,979	1,482	3,616
2016	133,457	96,967	32,922	639	2,928
2017	128,649	92,975	31,895	1,125	2,654
2018	169,663	109,734	55,433	1,579	2,916
2019	122,591	93,088	25,678	1,466	2,359
Year 2017					
January	11,190	8,387	2,434	117	252
February	9,084	6,751	2,048	70	215
March	9,887	7,958	1,626	88	215
April	8,921	6,984	1,669	58	210
May	10,155	7,684	2,186	86	198
June	10,349	7,786	2,299	75	189
July	9,510	7,060	2,168	94	188
August	10,150	7,562	2,289	107	193
September	9,677	7,215	2,166	79	217
October	10,152	7,961	1,890	79	222
November	9,559	7,050	2,163	89	257
December	20,015	10,576	8,957	184	298
Year 2018					
January	56,277	26,582	28,891	387	416
February	8,576	6,672	1,557	84	263
March	8,849	6,526	2,027	69	227
April	9,497	6,984	2,242	88	183
May	11,024	8,040	2,653	105	226
June	11,266	8,316	2,652	107	191
July	10,412	7,314	2,661	156	280
August	11,110	7,771	3,005	139	196
September	11,112	8,453	2,362	107	190
October	10,729	8,200	2,220	92	217
November	10,637	7,650	2,606	130	251
December	10,173	7,225	2,556	114	278
Year 2019					
January	14,739	9,930	4,366	187	256
February	8,675	6,498	1,866	86	225
March	8,661	6,854	1,510	91	205
April	8,308	6,209	1,785	86	228
May	9,986	7,741	1,975	100	169
June	10,289	8,141	1,876	99	173
July	10,743	7,908	2,538	139	158
August	11,039	8,791	1,945	121	183
September	9,817	7,760	1,716	156	186
October	10,036	7,746	1,972	136	182
November	9,666	7,293	2,041	135	197
December	10,630	8,215	2,088	129	198

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.2.E. Petroleum Liquids: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	48,912	0	7,557	1,802	39,552
2010	29,243	0	6,402	1,297	21,545
2011	22,799	0	5,927	1,039	15,833
2012	18,233	0	5,871	746	11,616
2013	20,717	0	6,176	3,292	11,248
2014	18,181	395	6,802	1,311	9,672
2015	18,449	379	6,748	1,755	9,568
2016	13,164	395	1,391	1,496	9,882
2017	11,825	405	1,253	1,432	8,736
2018	15,163	598	1,951	2,082	10,533
2019	12,383	403	1,319	2,472	8,189
Year 2017					
January	1,136	70	194	217	654
February	774	36	102	143	493
March	894	23	49	156	666
April	829	17	56	73	683
May	798	19	72	86	622
June	695	27	73	61	533
July	681	19	73	75	514
August	693	18	62	85	528
September	791	20	104	65	603
October	837	22	94	78	643
November	1,471	22	116	114	1,219
December	2,227	111	259	279	1,578
Year 2018					
January	4,121	353	733	645	2,390
February	1,046	26	71	148	801
March	898	17	77	127	677
April	794	17	71	105	601
May	848	20	106	94	628
June	942	28	82	89	743
July	873	18	63	166	625
August	832	21	70	134	608
September	760	38	86	90	546
October	1,104	27	92	94	891
November	1,353	17	120	181	1,035
December	1,592	19	379	208	987
Year 2019					
January	2,342	107	229	341	1,664
February	1,123	50	130	179	764
March	923	28	109	171	614
April	806	20	97	100	589
May	1,299	31	95	700	473
June	649	17	95	74	462
July	626	18	70	142	396
August	699	30	67	134	467
September	786	26	117	164	479
October	800	25	109	121	544
November	1,432	22	103	187	1,121
December	899	29	97	158	615

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.2.F. Petroleum Liquids: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	315,420	196,346	66,834	2,903	49,336
2010	273,357	188,987	55,444	2,267	26,660
2011	186,753	125,755	39,093	1,840	20,066
2012	153,189	105,179	29,952	2,364	15,695
2013	159,855	101,217	38,681	5,330	14,628
2014	206,995	118,621	70,291	4,076	14,008
2015	191,333	112,186	62,727	3,236	13,184
2016	146,621	97,363	34,313	2,135	12,810
2017	140,474	93,380	33,148	2,557	11,389
2018	184,826	110,332	57,383	3,661	13,449
2019	134,974	93,491	26,998	3,937	10,548
Year 2017					
January	12,326	8,457	2,628	334	906
February	9,858	6,788	2,150	212	707
March	10,781	7,981	1,675	244	881
April	9,749	7,001	1,725	131	892
May	10,953	7,703	2,258	172	820
June	11,045	7,813	2,372	136	723
July	10,190	7,080	2,241	168	702
August	10,843	7,580	2,350	192	721
September	10,468	7,235	2,270	144	819
October	10,988	7,983	1,984	157	865
November	11,030	7,072	2,279	203	1,476
December	22,243	10,687	9,216	464	1,877
Year 2018					
January	60,398	26,935	29,625	1,032	2,806
February	9,622	6,697	1,628	232	1,064
March	9,747	6,543	2,105	195	904
April	10,291	7,002	2,313	193	784
May	11,872	8,060	2,759	199	854
June	12,208	8,344	2,734	196	934
July	11,284	7,332	2,725	323	905
August	11,942	7,792	3,074	273	804
September	11,872	8,491	2,448	198	736
October	11,834	8,227	2,312	186	1,107
November	11,990	7,667	2,725	312	1,286
December	11,765	7,244	2,935	322	1,264
Year 2019					
January	17,081	10,038	4,595	527	1,921
February	9,798	6,549	1,996	265	988
March	9,584	6,883	1,619	263	819
April	9,114	6,229	1,883	186	816
May	11,285	7,772	2,070	801	643
June	10,938	8,159	1,971	173	635
July	11,369	7,926	2,609	281	554
August	11,738	8,821	2,011	255	650
September	10,603	7,786	1,833	319	665
October	10,836	7,772	2,082	257	725
November	11,099	7,315	2,144	322	1,318
December	11,529	8,244	2,185	286	813

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.3.A. Petroleum Coke: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	4,821	2,761	1,724	1	335
2010	4,994	3,325	1,354	2	313
2011	5,012	3,449	1,277	1	286
2012	3,675	2,105	756	1	812
2013	4,852	3,409	779	1	662
2014	4,412	3,440	599	2	371
2015	4,044	3,120	669	2	253
2016	4,253	3,427	591	2	233
2017	3,490	2,731	542	3	214
2018	3,623	2,740	704	2	177
2019	2,724	2,067	478	1	177
Year 2017					
January	368	301	51	0	15
February	277	217	44	0	15
March	265	214	31	0	20
April	168	110	41	0	16
May	329	264	49	0	16
June	350	282	48	0	20
July	344	271	51	0	22
August	300	226	52	0	22
September	276	209	50	0	16
October	228	171	40	0	18
November	293	234	40	0	18
December	292	231	44	0	16
Year 2018					
January	377	296	67	0	14
February	305	234	60	0	11
March	255	198	43	0	13
April	271	193	63	0	15
May	212	140	58	0	14
June	338	269	51	0	18
July	367	284	66	0	17
August	352	272	66	0	15
September	325	259	50	0	15
October	229	158	54	0	16
November	271	196	63	0	13
December	321	241	65	0	16
Year 2019					
January	326	258	54	0	13
February	272	222	39	0	11
March	235	193	28	0	13
April	155	107	32	0	16
May	294	219	60	0	14
June	216	151	51	0	14
July	309	227	58	0	24
August	276	203	58	0	15
September	231	183	33	0	15
October	83	64	3	0	15
November	129	101	15	0	14
December	197	137	46	0	14

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.3.B. Petroleum Coke: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	1,007	0	126	8	873
2010	1,059	0	98	11	950
2011	1,080	0	112	6	962
2012	1,346	0	113	11	1,222
2013	1,486	0	96	11	1,379
2014	1,283	3	90	16	1,174
2015	1,144	9	109	16	1,010
2016	1,099	6	113	9	971
2017	977	11	115	15	836
2018	929	12	93	10	814
2019	839	17	93	6	724
Year 2017					
January	81	0	10	2	70
February	69	0	10	1	58
March	90	1	10	2	77
April	74	0	10	1	63
May	78	1	10	1	66
June	91	1	9	1	80
July	86	1	10	0	75
August	90	2	9	2	77
September	76	1	9	2	64
October	85	1	9	1	74
November	80	1	9	1	69
December	76	1	10	2	63
Year 2018					
January	88	1	9	2	76
February	78	1	8	2	67
March	72	1	9	1	61
April	83	1	10	1	71
May	70	1	6	0	63
June	75	1	1	0	73
July	81	1	9	0	71
August	77	1	9	0	66
September	74	1	7	1	65
October	77	0	9	1	67
November	71	1	8	2	61
December	83	1	8	2	72
Year 2019					
January	73	1	8	2	62
February	66	1	8	1	55
March	73	1	9	1	62
April	71	2	9	1	59
May	70	1	9	0	61
June	70	1	7	0	62
July	76	2	8	0	65
August	69	0	8	0	61
September	79	2	7	0	69
October	64	1	2	0	61
November	57	2	9	0	46
December	72	2	9	1	60

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases. See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.3.C. Petroleum Coke: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	5,828	2,761	1,850	9	1,209
2010	6,053	3,325	1,452	12	1,264
2011	6,092	3,449	1,388	6	1,248
2012	5,021	2,105	869	13	2,034
2013	6,338	3,409	875	12	2,041
2014	5,695	3,443	689	18	1,545
2015	5,188	3,128	779	18	1,263
2016	5,352	3,433	705	10	1,204
2017	4,467	2,742	657	17	1,050
2018	4,552	2,752	797	12	991
2019	3,563	2,083	571	7	900
Year 2017					
January	449	301	61	2	85
February	347	218	54	1	74
March	355	215	41	2	97
April	241	110	51	1	79
May	406	265	59	1	82
June	441	283	57	1	100
July	430	272	60	0	98
August	390	228	61	2	99
September	352	211	60	2	80
October	314	172	49	2	91
November	373	235	49	1	87
December	368	233	54	2	80
Year 2018					
January	466	297	76	2	90
February	382	235	68	2	78
March	327	199	52	2	74
April	354	195	72	1	86
May	281	141	63	0	77
June	413	270	52	0	91
July	448	285	75	0	88
August	429	273	75	0	81
September	399	260	58	1	80
October	306	159	63	1	83
November	342	196	70	2	74
December	404	242	73	2	88
Year 2019					
January	399	260	62	2	75
February	338	224	47	1	66
March	308	194	37	2	75
April	227	110	41	1	74
May	364	220	69	0	75
June	287	152	58	0	76
July	385	230	66	0	89
August	346	203	66	0	76
September	310	185	40	0	84
October	146	65	5	0	76
November	186	102	24	0	60
December	269	139	55	1	74

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases. See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.3.D. Petroleum Coke: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	136,474	77,919	48,776	32	9,747
2010	141,774	94,331	38,235	44	9,165
2011	144,406	99,257	36,923	20	8,206
2012	105,488	60,862	21,643	39	22,944
2013	138,774	97,626	22,052	38	19,058
2014	123,736	95,642	17,032	59	11,003
2015	113,568	87,210	18,889	58	7,411
2016	118,303	94,892	16,591	47	6,774
2017	94,136	72,919	15,100	72	6,045
2018	100,362	73,895	21,327	57	5,083
2019	74,970	56,411	13,472	37	5,050
Year 2017					
January	9,816	7,962	1,411	9	434
February	7,611	5,942	1,225	6	439
March	7,257	5,813	864	8	573
April	4,481	2,859	1,154	3	466
May	8,922	7,123	1,351	4	444
June	9,520	7,640	1,338	3	539
July	9,185	7,140	1,420	2	623
August	8,115	6,024	1,461	9	620
September	7,540	5,658	1,418	9	455
October	6,092	4,478	1,114	6	494
November	7,861	6,242	1,111	4	504
December	7,735	6,038	1,234	9	454
Year 2018					
January	10,384	7,942	2,030	9	403
February	8,297	6,172	1,814	8	303
March	6,943	5,268	1,282	9	384
April	7,506	5,193	1,892	3	418
May	5,886	3,704	1,757	0	425
June	9,342	7,272	1,553	0	517
July	10,232	7,741	2,003	0	488
August	9,875	7,469	1,984	0	422
September	9,022	7,059	1,515	4	443
October	6,353	4,237	1,638	5	472
November	7,587	5,320	1,900	9	358
December	8,935	6,517	1,958	10	449
Year 2019					
January	8,808	6,917	1,522	10	359
February	7,433	6,030	1,079	7	316
March	6,367	5,167	810	8	382
April	4,444	3,063	904	7	469
May	8,002	5,898	1,688	0	416
June	6,199	4,342	1,448	0	409
July	8,365	6,078	1,623	0	664
August	7,657	5,605	1,626	0	427
September	6,427	5,076	941	0	411
October	2,236	1,716	98	0	422
November	3,682	2,867	433	0	382
December	5,350	3,653	1,299	4	394

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases. See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.3.E. Petroleum Coke: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	29,974	0	3,652	213	26,109
2010	31,303	0	2,855	296	28,152
2011	31,943	0	3,244	153	28,546
2012	38,777	0	3,281	315	35,181
2013	40,846	0	2,769	305	37,772
2014	36,602	90	2,597	449	33,467
2015	33,138	255	3,167	446	29,269
2016	32,473	159	3,255	241	28,817
2017	28,680	297	3,335	403	24,645
2018	27,398	332	2,693	284	24,088
2019	24,348	470	2,681	164	21,032
Year 2017					
January	2,369	5	279	53	2,032
February	2,059	11	273	31	1,744
March	2,628	17	298	46	2,268
April	2,201	3	288	15	1,895
May	2,295	20	295	20	1,960
June	2,638	24	274	14	2,326
July	2,528	32	275	10	2,211
August	2,676	56	270	55	2,295
September	2,244	31	265	52	1,896
October	2,534	26	276	35	2,197
November	2,320	35	257	21	2,007
December	2,187	36	286	50	1,815
Year 2018					
January	2,579	36	275	51	2,217
February	2,283	24	230	44	1,984
March	2,135	27	255	39	1,815
April	2,419	39	277	16	2,087
May	2,113	24	167	0	1,922
June	2,229	31	38	0	2,160
July	2,400	31	255	0	2,114
August	2,280	29	261	0	1,990
September	2,213	23	211	25	1,954
October	2,309	11	260	23	2,015
November	2,053	26	227	42	1,757
December	2,386	31	237	45	2,073
Year 2019					
January	2,121	33	224	48	1,815
February	1,906	37	235	27	1,607
March	2,129	27	249	37	1,817
April	2,108	73	257	33	1,746
May	2,059	15	248	0	1,796
June	2,056	24	209	0	1,822
July	2,178	72	221	0	1,885
August	1,985	6	239	0	1,740
September	2,277	64	208	0	2,005
October	1,842	17	61	0	1,764
November	1,641	43	263	0	1,335
December	2,045	60	268	18	1,699

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

See the Technical Notes for fuel conversion factors.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.3.F. Petroleum Coke: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	166,449	77,919	52,428	245	35,856
2010	173,078	94,331	41,090	340	37,317
2011	176,349	99,257	40,167	173	36,752
2012	144,266	60,862	24,925	353	58,126
2013	179,621	97,626	24,821	343	56,831
2014	160,338	95,731	19,629	508	44,470
2015	146,706	87,465	22,056	505	36,680
2016	150,776	95,051	19,846	288	35,591
2017	122,816	73,216	18,435	475	30,690
2018	127,760	74,227	24,020	341	29,171
2019	99,318	56,881	16,153	201	26,083
Year 2017					
January	12,185	7,967	1,690	63	2,466
February	9,671	5,953	1,498	37	2,183
March	9,885	5,829	1,161	54	2,841
April	6,682	2,862	1,442	18	2,361
May	11,217	7,144	1,646	24	2,404
June	12,158	7,664	1,612	17	2,865
July	11,712	7,172	1,695	11	2,834
August	10,791	6,080	1,731	65	2,915
September	9,784	5,690	1,683	61	2,350
October	8,626	4,503	1,390	41	2,691
November	10,181	6,276	1,368	26	2,511
December	9,922	6,074	1,521	58	2,269
Year 2018					
January	12,964	7,978	2,305	60	2,621
February	10,580	6,196	2,045	52	2,287
March	9,078	5,295	1,536	48	2,199
April	9,926	5,233	2,169	19	2,505
May	7,999	3,728	1,925	0	2,346
June	11,571	7,303	1,591	0	2,677
July	12,632	7,773	2,258	0	2,602
August	12,155	7,498	2,244	0	2,413
September	11,234	7,082	1,726	29	2,397
October	8,662	4,248	1,898	28	2,487
November	9,640	5,346	2,127	51	2,116
December	11,321	6,548	2,195	55	2,522
Year 2019					
January	10,929	6,950	1,746	59	2,174
February	9,339	6,067	1,315	34	1,924
March	8,496	5,194	1,058	46	2,198
April	6,552	3,136	1,161	41	2,215
May	10,060	5,913	1,936	0	2,211
June	8,255	4,366	1,657	0	2,232
July	10,543	6,150	1,844	0	2,549
August	9,642	5,611	1,864	0	2,167
September	8,704	5,139	1,148	0	2,416
October	4,078	1,733	159	0	2,187
November	5,323	2,910	696	0	1,717
December	7,395	3,712	1,567	23	2,093

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

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Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.4.A. Natural Gas: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Million Cubic Feet)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	7,121,069	2,911,279	3,655,712	34,279	519,799
2010	7,680,185	3,290,993	3,794,423	39,462	555,307
2011	7,883,865	3,446,087	3,819,107	47,170	571,501
2012	9,484,710	4,101,927	4,686,260	63,116	633,407
2013	8,596,299	3,970,447	3,917,131	66,570	642,152
2014	8,544,387	3,895,008	3,954,032	71,957	623,390
2015	10,016,576	4,745,255	4,576,683	70,092	624,545
2016	10,170,110	5,018,894	4,571,375	46,304	533,537
2017	9,508,062	4,754,893	4,161,984	50,060	541,126
2018	10,833,043	5,551,181	4,663,935	52,650	565,276
2019	11,600,558	5,968,380	4,958,798	55,575	617,805
Year 2017					
January	680,323	337,744	291,564	4,242	46,773
February	588,021	292,116	250,305	3,800	41,801
March	690,819	351,273	290,929	4,062	44,554
April	647,308	331,864	268,629	3,561	43,255
May	720,158	374,092	298,415	3,835	43,816
June	872,286	435,724	386,279	4,378	45,904
July	1,104,270	552,590	497,819	4,912	48,948
August	1,043,343	516,908	474,369	4,804	47,262
September	877,043	432,895	397,619	4,352	42,177
October	791,359	385,130	358,651	4,091	43,488
November	686,661	340,219	298,198	3,766	44,478
December	806,472	404,337	349,206	4,257	48,671
Year 2018					
January	805,929	425,891	327,351	4,145	48,542
February	706,517	363,824	296,296	3,886	42,511
March	772,448	395,826	329,151	4,071	43,400
April	722,667	372,401	303,383	3,616	43,268
May	868,518	459,568	359,038	4,201	45,712
June	973,956	520,305	402,054	4,633	46,963
July	1,245,648	639,299	549,546	5,518	51,285
August	1,208,900	605,610	546,123	5,593	51,575
September	1,051,922	530,570	468,776	4,838	47,737
October	909,338	457,374	400,338	4,290	47,335
November	784,673	395,480	337,321	3,760	48,112
December	782,527	385,034	344,559	4,098	48,836
Year 2019					
January	873,247	441,597	373,529	4,566	53,555
February	801,042	411,828	338,638	4,217	46,359
March	835,654	431,525	350,686	4,516	48,926
April	762,539	398,908	313,343	4,173	46,115
May	863,102	458,692	350,386	4,217	49,806
June	1,016,432	538,784	422,755	4,619	50,274
July	1,283,523	657,262	566,007	5,625	54,630
August	1,305,852	676,156	568,683	5,493	55,519
September	1,108,866	572,573	478,814	4,824	52,654
October	964,472	493,737	414,452	4,356	51,926
November	846,545	423,023	366,212	4,253	53,057
December	939,284	464,296	415,293	4,715	54,981

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Totals may not equal sum of components because of independent rounding.

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Table 5.4.B. Natural Gas: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Million Cubic Feet)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	816,787	0	305,542	41,275	469,970
2010	821,775	0	301,769	46,324	473,683
2011	839,681	0	308,669	39,856	491,155
2012	886,103	0	322,607	47,883	515,613
2013	882,385	0	303,177	51,057	528,151
2014	865,146	4,926	292,016	46,635	521,569
2015	935,098	8,060	283,372	46,287	597,379
2016	1,151,866	38,096	356,905	80,943	675,922
2017	1,168,544	38,740	309,949	104,324	715,532
2018	1,205,962	43,156	331,952	81,856	748,997
2019	1,196,025	42,645	317,231	79,734	756,415
Year 2017					
January	101,549	3,706	27,280	9,873	60,690
February	90,407	3,220	23,641	8,410	55,135
March	97,294	3,494	27,032	8,162	58,606
April	89,369	2,988	23,820	6,875	55,687
May	91,989	3,096	24,254	7,268	57,371
June	95,015	2,718	25,783	8,423	58,091
July	103,478	3,437	27,754	9,924	62,363
August	101,700	3,212	27,478	9,947	61,063
September	97,286	2,968	25,062	8,898	60,357
October	97,642	3,045	25,404	8,648	60,544
November	95,784	3,124	24,761	8,412	59,488
December	107,031	3,731	27,680	9,485	66,136
Year 2018					
January	107,213	3,929	28,934	7,417	66,933
February	94,793	3,366	26,629	6,706	58,093
March	100,213	3,557	28,088	6,844	61,724
April	92,932	2,942	25,265	6,133	58,592
May	94,707	3,306	26,238	6,099	59,064
June	97,016	3,642	26,642	6,537	60,196
July	107,003	4,484	30,339	7,649	64,531
August	105,929	4,079	29,861	7,691	64,297
September	99,289	3,479	27,089	6,581	62,140
October	99,045	3,013	27,218	6,411	62,402
November	101,846	3,185	27,080	6,829	64,751
December	105,976	4,174	28,570	6,959	66,273
Year 2019					
January	108,272	3,951	29,369	7,409	67,543
February	97,224	3,804	24,972	6,793	61,656
March	101,583	3,690	27,549	6,684	63,661
April	91,878	2,748	24,623	6,027	58,480
May	94,224	2,863	24,079	5,727	61,556
June	95,837	3,342	25,592	6,130	60,772
July	102,404	3,983	27,280	7,354	63,786
August	104,051	4,098	28,829	6,950	64,175
September	97,399	3,762	25,526	6,377	61,734
October	96,976	2,931	25,473	6,171	62,402
November	100,030	3,527	26,036	6,628	63,839
December	106,147	3,946	27,902	7,486	66,812

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.4.C. Natural Gas: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Million Cubic Feet)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	7,937,856	2,911,279	3,961,254	75,555	989,769
2010	8,501,960	3,290,993	4,096,192	85,786	1,028,990
2011	8,723,546	3,446,087	4,127,777	87,026	1,062,657
2012	10,370,812	4,101,927	5,008,867	110,999	1,149,020
2013	9,478,685	3,970,447	4,220,309	117,626	1,170,303
2014	9,409,532	3,899,934	4,246,048	118,591	1,144,959
2015	10,951,674	4,753,315	4,860,055	116,380	1,221,924
2016	11,321,975	5,056,990	4,928,280	127,246	1,209,459
2017	10,676,606	4,793,632	4,471,933	154,383	1,256,658
2018	12,039,005	5,594,338	4,995,888	134,507	1,314,273
2019	12,796,583	6,011,024	5,276,029	135,310	1,374,220
Year 2017					
January	781,872	341,450	318,844	14,114	107,463
February	678,428	295,336	273,946	12,210	96,936
March	788,112	354,767	317,961	12,224	103,160
April	736,677	334,851	292,448	10,435	98,942
May	812,147	377,189	322,669	11,102	101,187
June	967,301	438,443	412,062	12,802	103,994
July	1,207,748	556,028	525,573	14,836	111,310
August	1,145,043	520,120	501,847	14,751	108,326
September	974,328	435,863	422,681	13,250	102,535
October	889,001	388,175	384,055	12,739	104,032
November	782,445	343,343	322,959	12,177	103,966
December	913,503	408,068	376,887	13,742	114,807
Year 2018					
January	913,142	429,820	356,285	11,562	115,475
February	801,310	367,190	322,924	10,592	100,604
March	872,661	399,383	357,239	10,914	105,124
April	815,600	375,343	328,647	9,750	101,860
May	963,226	462,873	385,276	10,300	104,776
June	1,070,972	523,947	428,696	11,170	107,159
July	1,352,652	643,783	579,885	13,167	115,816
August	1,314,829	609,689	575,984	13,285	115,872
September	1,151,210	534,049	495,866	11,419	109,877
October	1,008,383	460,387	427,556	10,702	109,738
November	886,519	398,665	364,401	10,589	112,863
December	888,503	389,208	373,128	11,058	115,109
Year 2019					
January	981,519	445,548	402,898	11,975	121,099
February	898,267	415,631	363,610	11,010	108,015
March	937,238	435,215	378,235	11,200	112,587
April	854,417	401,656	337,966	10,200	104,595
May	957,326	461,555	374,465	9,944	111,362
June	1,112,268	542,126	448,347	10,749	111,046
July	1,385,927	661,245	593,287	12,979	118,416
August	1,409,903	680,254	597,512	12,443	119,694
September	1,206,264	576,335	504,340	11,201	114,389
October	1,061,448	496,668	439,925	10,527	114,328
November	946,575	426,550	392,248	10,881	116,896
December	1,045,431	468,241	443,195	12,201	121,793

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.4.D. Natural Gas: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	7,301,522	2,981,285	3,750,080	35,046	535,111
2010	7,852,665	3,359,035	3,882,995	40,356	570,279
2011	8,052,309	3,511,732	3,906,484	48,509	585,584
2012	9,696,575	4,179,725	4,802,741	64,987	649,122
2013	8,813,288	4,059,838	4,026,793	67,918	658,740
2014	8,795,303	4,001,826	4,076,787	74,194	642,495
2015	10,360,990	4,905,009	4,739,438	71,929	644,615
2016	10,515,826	5,189,543	4,728,444	47,550	550,288
2017	9,827,794	4,911,629	4,308,241	51,592	556,331
2018	11,191,452	5,730,408	4,825,957	54,390	580,696
2019	11,995,859	6,165,610	5,137,826	57,028	635,394
Year 2017					
January	703,875	349,666	302,008	4,368	47,833
February	607,776	301,718	259,154	3,915	42,989
March	713,669	362,690	301,014	4,188	45,776
April	668,682	342,733	277,802	3,669	44,479
May	743,595	386,053	308,547	3,934	45,060
June	901,473	450,067	399,664	4,508	47,234
July	1,142,502	571,579	515,481	5,060	50,383
August	1,079,042	534,306	491,131	4,951	48,654
September	907,689	447,592	412,178	4,490	43,429
October	817,248	397,175	371,168	4,220	44,685
November	708,836	350,721	308,473	3,889	45,753
December	833,407	417,330	361,621	4,400	50,056
Year 2018					
January	832,763	439,632	338,891	4,297	49,943
February	729,643	375,307	306,626	4,024	43,685
March	798,583	408,805	341,003	4,213	44,562
April	745,888	383,881	313,808	3,744	44,456
May	896,969	474,489	371,190	4,322	46,968
June	1,005,861	536,851	415,986	4,775	48,249
July	1,286,597	660,362	567,947	5,689	52,598
August	1,248,419	625,212	564,433	5,775	52,999
September	1,087,420	548,304	485,082	5,011	49,023
October	939,342	471,956	414,310	4,446	48,630
November	810,660	407,831	349,539	3,876	49,415
December	809,307	397,779	357,144	4,217	50,168
Year 2019					
January	901,820	454,966	387,180	4,684	54,991
February	827,342	424,486	350,869	4,326	47,662
March	862,709	444,761	363,075	4,635	50,238
April	787,649	412,145	323,855	4,288	47,361
May	890,167	472,597	362,071	4,323	51,176
June	1,049,756	555,961	437,389	4,738	51,668
July	1,328,545	680,210	586,332	5,762	56,242
August	1,353,065	700,374	589,832	5,629	57,230
September	1,147,611	591,872	496,535	4,954	54,249
October	997,675	510,281	429,551	4,473	53,371
November	876,541	437,526	380,018	4,370	54,627
December	972,976	480,432	431,121	4,845	56,579

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.4.E. Natural Gas: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	836,863	0	312,553	42,032	482,279
2010	841,521	0	308,246	47,001	486,274
2011	861,006	0	315,411	40,976	504,619
2012	909,087	0	330,354	48,944	529,788
2013	905,583	0	311,058	51,939	542,587
2014	891,994	5,033	300,870	47,579	538,514
2015	965,573	8,254	292,629	47,573	617,118
2016	1,188,399	39,123	367,919	83,938	697,418
2017	1,204,582	39,828	318,611	107,987	738,156
2018	1,242,771	44,393	341,707	85,108	771,563
2019	1,232,925	43,862	327,203	82,455	779,405
Year 2017					
January	104,758	3,813	28,045	10,223	62,676
February	93,160	3,310	24,273	8,706	56,871
March	100,229	3,588	27,763	8,440	60,438
April	92,042	3,069	24,463	7,102	57,408
May	94,753	3,181	24,908	7,500	59,164
June	97,955	2,795	26,507	8,718	59,935
July	106,716	3,537	28,533	10,280	64,365
August	104,854	3,308	28,247	10,300	63,000
September	100,432	3,053	25,827	9,217	62,336
October	100,639	3,126	26,136	8,955	62,422
November	98,711	3,206	25,452	8,716	61,336
December	110,333	3,842	28,457	9,829	68,204
Year 2018					
January	110,628	4,042	29,790	7,723	69,074
February	97,708	3,459	27,364	6,975	59,910
March	103,291	3,651	28,924	7,105	63,610
April	95,684	3,016	25,979	6,378	60,311
May	97,553	3,393	26,998	6,338	60,824
June	99,927	3,741	27,426	6,796	61,964
July	110,227	4,625	31,245	7,946	66,410
August	109,218	4,214	30,755	7,989	66,261
September	102,279	3,587	27,861	6,855	63,976
October	102,003	3,095	27,963	6,679	64,267
November	104,969	3,272	27,893	7,097	66,706
December	109,284	4,299	29,508	7,228	68,250
Year 2019					
January	111,586	4,062	30,283	7,654	69,588
February	100,131	3,910	25,665	7,015	63,541
March	104,540	3,780	28,320	6,904	65,536
April	94,549	2,814	25,348	6,231	60,157
May	96,983	2,936	24,765	5,921	63,360
June	98,713	3,437	26,357	6,342	62,577
July	105,625	4,109	28,188	7,602	65,726
August	107,481	4,228	29,837	7,188	66,227
September	100,509	3,875	26,356	6,603	63,675
October	100,070	3,008	26,323	6,391	64,347
November	103,186	3,633	26,907	6,865	65,781
December	109,550	4,069	28,852	7,739	68,889

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.4.F. Natural Gas: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	8,138,385	2,981,285	4,062,633	77,077	1,017,390
2010	8,694,186	3,359,035	4,191,241	87,357	1,056,553
2011	8,913,315	3,511,732	4,221,895	89,485	1,090,203
2012	10,605,661	4,179,725	5,133,095	113,932	1,178,910
2013	9,718,871	4,059,838	4,337,851	119,857	1,201,326
2014	9,687,297	4,006,859	4,377,657	121,773	1,181,009
2015	11,326,564	4,913,263	5,032,066	119,502	1,261,732
2016	11,704,224	5,228,667	5,096,363	131,489	1,247,706
2017	11,032,375	4,951,457	4,626,852	159,580	1,294,487
2018	12,434,223	5,774,801	5,167,665	139,498	1,352,259
2019	13,228,784	6,209,473	5,465,029	139,483	1,414,799
Year 2017					
January	808,633	353,479	330,054	14,591	110,509
February	700,936	305,028	283,427	12,621	99,860
March	813,898	366,278	328,777	12,628	106,215
April	760,724	345,802	302,264	10,771	101,886
May	838,347	389,234	333,454	11,435	104,225
June	999,428	452,862	426,171	13,226	107,168
July	1,249,218	575,116	544,014	15,340	114,748
August	1,183,897	537,613	519,378	15,251	111,654
September	1,008,121	450,644	438,005	13,706	105,765
October	917,888	400,301	397,304	13,175	107,108
November	807,547	353,926	333,925	12,606	107,089
December	943,740	421,172	390,078	14,229	118,260
Year 2018					
January	943,391	443,674	368,681	12,020	119,017
February	827,351	378,767	333,990	10,999	103,595
March	901,874	412,456	369,928	11,318	108,172
April	841,572	386,896	339,787	10,121	104,768
May	994,522	477,882	398,187	10,660	107,792
June	1,105,788	540,592	443,412	11,572	110,213
July	1,396,824	664,987	599,192	13,636	119,009
August	1,357,638	629,426	595,188	13,764	119,260
September	1,189,699	551,891	512,943	11,866	112,999
October	1,041,345	475,051	442,273	11,125	112,896
November	915,629	411,103	377,431	10,973	116,121
December	918,591	402,077	386,652	11,444	118,418
Year 2019					
January	1,013,407	459,027	417,463	12,338	124,578
February	927,474	428,396	376,534	11,341	111,203
March	967,250	448,542	391,394	11,540	115,774
April	882,198	414,959	349,203	10,518	107,518
May	987,150	475,533	386,836	10,244	114,536
June	1,148,469	559,398	463,746	11,080	114,245
July	1,434,171	684,319	614,520	13,363	121,968
August	1,460,546	704,603	619,669	12,817	123,457
September	1,248,120	595,748	522,891	11,557	117,924
October	1,097,746	513,289	455,874	10,864	117,718
November	979,727	441,159	406,924	11,235	120,409
December	1,082,526	484,501	459,973	12,584	125,468

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920

Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.5.D. Wood / Wood Waste Biomass: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	320,444	29,565	130,894	274	159,712
2010	349,530	40,167	137,072	274	172,016
2011	347,623	35,474	130,108	482	181,559
2012	390,342	32,723	138,217	478	218,924
2013	397,929	43,363	143,721	536	210,308
2014	431,285	45,643	174,513	961	210,167
2015	406,650	43,919	171,387	504	190,840
2016	359,983	41,036	149,516	473	168,959
2017	363,646	42,806	151,877	460	168,503
2018	361,703	45,856	143,288	520	172,039
2019	338,317	42,240	128,980	583	166,514
Year 2017					
January	31,076	4,492	12,650	56	13,878
February	28,393	3,584	11,989	50	12,771
March	31,265	4,210	13,446	26	13,584
April	27,467	3,136	11,064	34	13,232
May	28,262	2,799	11,620	43	13,800
June	30,235	3,180	12,595	38	14,422
July	32,592	3,942	13,504	41	15,105
August	33,309	3,803	14,250	41	15,214
September	28,549	2,090	13,002	15	13,442
October	28,927	3,387	11,786	33	13,720
November	30,409	3,608	12,597	41	14,163
December	33,163	4,575	13,373	43	15,172
Year 2018					
January	33,136	4,713	13,790	63	14,571
February	28,906	3,689	12,141	42	13,033
March	31,435	4,501	12,243	36	14,655
April	26,860	2,966	10,597	16	13,280
May	29,530	3,196	11,683	32	14,619
June	31,205	3,909	12,733	53	14,509
July	33,490	4,670	13,260	59	15,501
August	32,186	4,427	12,624	69	15,067
September	28,704	3,340	11,278	52	14,034
October	27,972	3,376	10,642	27	13,927
November	28,539	3,741	10,733	20	14,044
December	29,741	3,326	11,563	51	14,801
Year 2019					
January	31,330	4,132	12,533	52	14,613
February	26,761	3,408	10,117	57	13,179
March	28,083	3,232	10,362	72	14,418
April	23,804	2,677	8,499	24	12,604
May	26,723	3,451	10,257	18	12,997
June	27,518	2,894	10,815	31	13,778
July	31,373	4,740	11,694	101	14,838
August	31,913	5,205	11,694	63	14,951
September	28,163	3,594	11,078	51	13,440
October	26,246	2,962	9,729	42	13,513
November	26,964	2,194	11,052	35	13,684
December	29,438	3,751	11,151	37	14,500

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.5.E. Wood / Wood Waste Biomass: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	816,285	0	19,587	1,135	795,563
2010	876,041	0	18,357	1,064	856,620
2011	893,314	0	16,577	1,022	875,716
2012	883,158	0	19,251	949	862,958
2013	919,631	0	20,342	950	898,339
2014	946,344	8,835	22,262	3,766	911,481
2015	943,962	9,351	19,200	3,714	911,697
2016	969,841	10,950	22,905	4,520	931,465
2017	939,633	11,656	22,986	4,522	900,469
2018	929,365	10,297	21,623	4,806	892,639
2019	907,420	3,564	25,740	4,969	873,147
Year 2017					
January	81,329	1,206	2,090	525	77,508
February	74,084	1,037	1,879	430	70,738
March	80,057	1,170	2,113	299	76,475
April	74,348	1,044	1,548	295	71,461
May	75,155	716	1,623	301	72,516
June	78,685	1,007	1,641	322	75,716
July	80,804	683	1,963	355	77,803
August	81,948	989	2,010	365	78,585
September	73,629	931	2,032	233	70,432
October	77,295	893	1,972	402	74,028
November	78,977	902	1,929	473	75,674
December	83,321	1,079	2,186	524	79,532
Year 2018					
January	81,175	844	2,115	454	77,762
February	73,007	878	2,141	474	69,514
March	78,989	948	1,966	493	75,583
April	73,967	869	1,533	339	71,225
May	77,198	673	1,679	319	74,528
June	75,544	655	1,683	402	72,805
July	80,237	991	1,899	382	76,964
August	79,868	854	1,930	417	76,667
September	73,254	655	1,676	336	70,587
October	76,266	1,005	1,607	329	73,326
November	76,373	891	1,635	343	73,503
December	83,486	1,033	1,759	518	80,175
Year 2019					
January	81,039	449	2,361	544	77,685
February	73,341	412	2,142	478	70,309
March	77,242	410	2,134	436	74,262
April	72,647	421	2,095	344	69,788
May	74,589	127	2,256	356	71,850
June	73,406	186	2,365	342	70,512
July	76,941	286	2,031	403	74,220
August	77,355	190	2,179	398	74,588
September	72,370	117	2,067	394	69,791
October	74,506	233	1,711	423	72,140
November	75,571	346	2,122	442	72,662
December	78,415	386	2,277	410	75,342

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.5.F. Wood / Wood Waste Biomass: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	1,136,729	29,565	150,481	1,408	955,276
2010	1,225,571	40,167	155,429	1,338	1,028,637
2011	1,240,937	35,474	146,684	1,504	1,057,275
2012	1,273,500	32,723	157,468	1,427	1,081,882
2013	1,317,560	43,363	164,063	1,486	1,108,647
2014	1,377,629	54,478	196,775	4,727	1,121,648
2015	1,350,612	53,269	190,587	4,219	1,102,537
2016	1,329,824	51,986	172,421	4,993	1,100,424
2017	1,303,279	54,462	174,862	4,982	1,068,972
2018	1,291,068	56,153	164,911	5,326	1,064,678
2019	1,245,737	45,804	154,720	5,552	1,039,661
Year 2017					
January	112,404	5,698	14,740	581	91,385
February	102,477	4,621	13,868	480	83,508
March	111,322	5,380	15,559	325	90,059
April	101,815	4,180	12,612	328	84,694
May	103,417	3,515	13,243	344	86,316
June	108,920	4,187	14,235	360	90,138
July	113,396	4,625	15,468	395	92,908
August	115,257	4,792	16,260	406	93,800
September	102,178	3,021	15,034	249	83,874
October	106,222	4,281	13,758	435	87,748
November	109,386	4,509	14,526	514	89,837
December	116,483	5,654	15,558	566	94,705
Year 2018					
January	114,312	5,557	15,905	517	92,333
February	101,913	4,567	14,282	516	82,547
March	110,425	5,449	14,209	528	90,238
April	100,826	3,835	12,131	356	84,505
May	106,728	3,869	13,362	351	89,146
June	106,749	4,564	14,416	455	87,314
July	113,727	5,661	15,160	441	92,465
August	112,054	5,281	14,554	486	91,733
September	101,958	3,995	12,954	388	84,621
October	104,238	4,381	12,248	356	87,253
November	104,912	4,633	12,368	363	87,548
December	113,227	4,360	13,322	569	94,976
Year 2019					
January	112,369	4,581	14,894	596	92,297
February	100,102	3,820	12,259	535	83,488
March	105,325	3,641	12,496	508	88,680
April	96,451	3,098	10,594	368	82,392
May	101,311	3,578	12,513	374	84,847
June	100,924	3,081	13,179	373	84,291
July	108,314	5,026	13,725	505	89,058
August	109,267	5,395	13,873	461	89,539
September	100,533	3,712	13,145	446	83,230
October	100,752	3,195	11,441	464	85,652
November	102,536	2,540	13,174	477	86,345
December	107,853	4,138	13,428	447	89,841

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.6.A. Landfill Gas: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Million Cubic Feet)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	206,792	19,583	180,689	5,931	589
2010	218,331	19,975	192,428	5,535	393
2011	232,795	22,086	180,856	29,469	384
2012	256,376	25,193	201,965	26,672	2,545
2013	271,967	27,259	211,942	28,143	4,623
2014	285,982	25,819	228,447	27,038	4,678
2015	282,530	25,257	227,381	25,250	4,642
2016	273,557	24,280	224,993	20,445	3,839
2017	278,112	25,074	229,050	20,121	3,866
2018	270,235	23,580	223,513	19,790	3,352
2019	257,494	22,726	214,819	16,874	3,075
Year 2017					
January	24,099	2,197	19,771	1,785	346
February	21,927	2,063	17,956	1,570	337
March	24,031	2,237	19,679	1,754	361
April	22,649	2,155	18,538	1,627	330
May	23,637	2,240	19,409	1,696	292
June	23,095	1,955	19,137	1,666	336
July	23,176	1,905	19,286	1,705	280
August	23,354	2,006	19,340	1,702	306
September	22,287	1,901	18,440	1,654	293
October	22,352	2,047	18,534	1,450	321
November	23,123	2,141	18,950	1,706	327
December	24,383	2,228	20,011	1,806	338
Year 2018					
January	23,568	2,389	19,205	1,673	301
February	22,069	2,186	17,993	1,576	314
March	23,672	2,377	19,280	1,692	324
April	22,281	2,159	18,159	1,633	330
May	22,748	2,125	18,722	1,609	291
June	21,854	1,777	18,189	1,607	281
July	22,507	1,817	18,773	1,651	266
August	23,061	1,739	19,377	1,696	249
September	20,472	1,604	17,004	1,643	222
October	22,360	1,779	18,634	1,687	259
November	22,405	1,812	18,708	1,630	255
December	23,237	1,815	19,468	1,695	259
Year 2019					
January	22,792	2,043	18,790	1,704	255
February	20,542	1,803	16,998	1,508	233
March	22,380	2,008	18,459	1,642	271
April	20,457	1,890	17,249	1,057	261
May	20,947	1,952	17,959	778	258
June	21,359	1,857	17,889	1,360	254
July	21,932	1,873	18,326	1,493	240
August	21,963	1,898	18,295	1,518	253
September	20,789	1,811	17,246	1,477	256
October	21,252	1,843	17,705	1,436	268
November	20,712	1,807	17,237	1,419	248
December	22,369	1,942	18,665	1,482	280

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.6.B. Landfill Gas: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Million Cubic Feet)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	793	0	545	176	72
2010	1,623	0	1,195	370	58
2011	3,195	0	2,753	351	91
2012	3,189	0	2,788	340	61
2013	831	0	261	423	147
2014	1,710	176	525	674	335
2015	1,522	2	644	515	362
2016	4,163	3	2,339	1,034	788
2017	3,940	2	1,948	1,099	891
2018	3,621	0	1,867	911	843
2019	3,570	5	1,933	820	812
Year 2017					
January	352	0	171	94	86
February	332	0	159	92	81
March	351	0	174	92	84
April	346	0	153	107	87
May	296	0	131	85	80
June	329	0	165	89	75
July	313	0	177	85	51
August	351	0	175	98	78
September	330	0	170	98	62
October	319	0	170	93	56
November	296	0	138	85	74
December	324	0	166	81	77
Year 2018					
January	321	0	176	68	77
February	320	0	165	79	77
March	340	0	175	82	83
April	335	0	164	85	86
May	285	0	140	71	74
June	259	0	146	46	68
July	278	0	139	76	64
August	302	0	157	82	63
September	290	0	150	82	58
October	334	0	170	95	69
November	276	0	134	73	68
December	280	0	152	71	57
Year 2019					
January	331	0	181	84	66
February	301	0	175	67	58
March	357	0	203	80	73
April	362	0	184	102	75
May	250	0	112	64	74
June	283	0	146	77	59
July	282	0	166	42	73
August	267	0	128	73	65
September	264	0	125	74	65
October	317	0	168	77	71
November	284	0	155	59	70
December	273	0	190	21	62

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.6.C. Landfill Gas: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Million Cubic Feet)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	207,585	19,583	181,234	6,106	661
2010	219,954	19,975	193,623	5,905	451
2011	235,990	22,086	183,609	29,820	474
2012	259,564	25,193	204,753	27,012	2,606
2013	272,798	27,259	212,203	28,566	4,770
2014	287,692	25,995	228,971	27,713	5,013
2015	284,052	25,259	228,024	25,765	5,004
2016	277,720	24,283	227,332	21,479	4,626
2017	282,051	25,076	230,998	21,220	4,757
2018	273,856	23,580	225,380	20,701	4,196
2019	261,064	22,731	216,753	17,694	3,887
Year 2017					
January	24,451	2,197	19,942	1,880	432
February	22,259	2,063	18,116	1,662	418
March	24,382	2,237	19,853	1,846	445
April	22,995	2,155	18,690	1,734	417
May	23,933	2,240	19,539	1,781	372
June	23,423	1,955	19,302	1,754	411
July	23,489	1,905	19,463	1,789	331
August	23,704	2,006	19,515	1,800	383
September	22,617	1,901	18,609	1,752	355
October	22,670	2,047	18,704	1,543	377
November	23,419	2,141	19,088	1,791	400
December	24,707	2,228	20,176	1,887	415
Year 2018					
January	23,890	2,389	19,382	1,741	378
February	22,390	2,186	18,158	1,655	390
March	24,012	2,377	19,455	1,774	407
April	22,616	2,159	18,323	1,718	416
May	23,033	2,125	18,862	1,680	366
June	22,113	1,777	18,335	1,652	349
July	22,785	1,817	18,912	1,726	330
August	23,363	1,739	19,534	1,778	313
September	20,763	1,604	17,154	1,725	280
October	22,694	1,779	18,804	1,783	328
November	22,681	1,812	18,842	1,703	324
December	23,516	1,815	19,620	1,766	316
Year 2019					
January	23,123	2,043	18,971	1,788	321
February	20,843	1,804	17,173	1,576	291
March	22,737	2,008	18,662	1,722	344
April	20,819	1,891	17,433	1,159	336
May	21,197	1,952	18,072	842	332
June	21,642	1,857	18,035	1,438	313
July	22,214	1,874	18,492	1,535	313
August	22,230	1,898	18,423	1,591	317
September	21,053	1,811	17,371	1,550	321
October	21,569	1,843	17,873	1,514	339
November	20,996	1,807	17,392	1,478	319
December	22,642	1,942	18,855	1,503	342

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.6.D. Landfill Gas: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	99,821	9,748	86,773	2,999	301
2010	105,835	10,029	92,763	2,837	205
2011	112,538	11,146	89,857	11,332	203
2012	124,297	12,721	99,938	10,356	1,282
2013	132,766	13,819	105,330	11,290	2,327
2014	140,779	13,132	114,333	10,937	2,377
2015	138,085	12,846	112,911	10,023	2,304
2016	135,365	12,294	112,770	8,374	1,927
2017	137,635	13,071	114,131	8,508	1,926
2018	133,957	12,395	111,769	8,104	1,689
2019	127,540	11,794	107,100	7,086	1,560
Year 2017					
January	11,915	1,146	9,852	745	172
February	10,857	1,074	8,953	665	165
March	11,881	1,161	9,798	743	180
April	11,204	1,119	9,242	681	162
May	11,718	1,153	9,694	725	146
June	11,460	1,044	9,532	715	169
July	11,493	1,023	9,598	729	142
August	11,554	1,055	9,620	724	154
September	11,014	987	9,190	689	147
October	11,096	1,062	9,257	620	157
November	11,430	1,102	9,451	715	162
December	12,013	1,145	9,944	756	168
Year 2018					
January	11,667	1,237	9,582	699	150
February	10,937	1,129	8,994	657	157
March	11,740	1,237	9,638	704	161
April	11,060	1,150	9,069	676	165
May	11,319	1,142	9,368	664	146
June	10,808	938	9,079	650	141
July	11,116	957	9,354	671	134
August	11,416	914	9,683	690	128
September	10,140	845	8,524	658	113
October	11,091	941	9,333	685	132
November	11,142	948	9,404	660	131
December	11,522	958	9,742	690	131
Year 2019					
January	11,250	1,062	9,360	697	130
February	10,167	936	8,493	620	118
March	11,055	1,043	9,204	671	137
April	10,195	982	8,612	469	132
May	10,504	1,017	8,987	371	129
June	10,673	964	8,953	629	127
July	10,857	971	9,141	621	124
August	10,838	984	9,092	633	129
September	10,247	939	8,571	608	129
October	10,514	956	8,839	585	135
November	10,218	934	8,577	579	128
December	11,022	1,006	9,273	600	143

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Table 5.6.E. Landfill Gas: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	440	0	313	91	37
2010	847	0	643	174	30
2011	1,635	0	1,422	165	48
2012	1,630	0	1,441	156	32
2013	414	0	132	206	76
2014	852	88	266	326	173
2015	756	1	326	250	179
2016	2,236	1	1,266	589	380
2017	2,196	1	1,066	698	431
2018	1,964	0	966	594	403
2019	1,960	2	1,034	531	394
Year 2017					
January	192	0	94	56	42
February	181	0	88	55	39
March	193	0	95	57	40
April	197	0	84	72	42
May	163	0	72	52	38
June	184	0	90	58	36
July	178	0	96	56	26
August	195	0	95	63	37
September	184	0	92	62	30
October	181	0	93	61	27
November	167	0	76	56	35
December	181	0	91	51	39
Year 2018					
January	169	0	91	42	36
February	172	0	85	50	36
March	185	0	91	55	39
April	183	0	86	56	41
May	151	0	73	43	35
June	135	0	77	26	33
July	153	0	73	50	30
August	166	0	82	54	31
September	161	0	78	55	28
October	185	0	87	65	33
November	152	0	69	49	34
December	151	0	74	50	27
Year 2019					
January	184	0	96	56	32
February	165	0	93	44	28
March	194	0	108	52	35
April	197	0	99	62	36
May	137	0	63	39	35
June	158	0	80	50	29
July	151	0	89	24	37
August	150	0	69	49	32
September	150	0	67	51	31
October	176	0	89	52	34
November	160	0	82	42	36
December	138	0	97	10	30

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Table 5.6.F. Landfill Gas: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	100,261	9,748	87,086	3,089	337
2010	106,681	10,029	93,405	3,011	236
2011	114,173	11,146	91,279	11,497	251
2012	125,927	12,721	101,379	10,512	1,315
2013	133,180	13,819	105,462	11,497	2,403
2014	141,632	13,220	114,599	11,263	2,550
2015	138,841	12,847	113,238	10,273	2,483
2016	137,600	12,295	114,036	8,963	2,307
2017	139,831	13,072	115,197	9,206	2,357
2018	135,921	12,395	112,736	8,698	2,092
2019	129,500	11,795	108,134	7,617	1,954
Year 2017					
January	12,107	1,146	9,946	801	214
February	11,039	1,074	9,041	720	204
March	12,074	1,161	9,894	800	220
April	11,401	1,119	9,325	753	204
May	11,881	1,153	9,766	777	184
June	11,644	1,044	9,621	773	205
July	11,670	1,023	9,695	785	167
August	11,749	1,055	9,715	787	192
September	11,198	987	9,282	751	177
October	11,278	1,062	9,350	681	184
November	11,597	1,102	9,527	771	197
December	12,194	1,145	10,035	807	207
Year 2018					
January	11,836	1,237	9,673	741	186
February	11,109	1,129	9,079	707	193
March	11,925	1,237	9,728	760	201
April	11,242	1,150	9,155	733	206
May	11,470	1,142	9,441	707	181
June	10,943	938	9,155	675	174
July	11,269	957	9,427	721	164
August	11,582	914	9,765	744	159
September	10,301	845	8,602	713	140
October	11,277	941	9,420	750	165
November	11,294	948	9,473	709	165
December	11,673	958	9,817	740	158
Year 2019					
January	11,434	1,062	9,456	753	162
February	10,332	936	8,586	664	146
March	11,249	1,043	9,312	723	172
April	10,393	982	8,711	531	168
May	10,641	1,017	9,050	410	164
June	10,832	965	9,033	679	155
July	11,008	972	9,231	645	161
August	10,988	984	9,161	683	160
September	10,396	939	8,638	659	160
October	10,690	956	8,929	637	169
November	10,378	934	8,659	621	164
December	11,159	1,006	9,370	610	173

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.7.A. Biogenic Municipal Solid Waste: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	19,669	465	17,048	2,155	0
2010	19,437	402	16,802	2,233	0
2011	16,972	388	14,625	1,955	4
2012	16,968	418	14,235	2,304	12
2013	17,007	456	14,057	2,485	8
2014	16,706	444	13,809	2,447	6
2015	16,631	452	13,797	2,375	8
2016	16,994	464	13,953	2,566	11
2017	16,348	422	13,381	2,537	8
2018	16,783	467	13,859	2,448	9
2019	15,559	297	12,941	2,310	10
Year 2017					
January	1,434	35	1,194	205	0
February	1,244	19	1,034	191	0
March	1,330	36	1,091	204	0
April	1,288	35	1,044	209	0
May	1,410	36	1,147	226	1
June	1,421	38	1,175	207	1
July	1,440	41	1,172	226	1
August	1,453	47	1,182	223	1
September	1,321	41	1,072	207	1
October	1,317	33	1,065	218	1
November	1,311	30	1,074	207	1
December	1,378	32	1,132	214	1
Year 2018					
January	1,370	28	1,147	195	0
February	1,297	26	1,090	180	1
March	1,398	40	1,153	204	1
April	1,356	38	1,117	200	1
May	1,419	43	1,158	217	1
June	1,476	42	1,218	214	1
July	1,479	48	1,224	207	1
August	1,483	47	1,220	215	1
September	1,334	36	1,097	199	1
October	1,387	43	1,140	205	0
November	1,369	39	1,127	202	0
December	1,416	37	1,169	210	0
Year 2019					
January	1,322	30	1,092	199	1
February	1,158	20	961	177	1
March	1,255	20	1,046	188	1
April	1,235	28	1,014	193	1
May	1,337	26	1,112	198	1
June	1,323	25	1,098	200	1
July	1,369	27	1,146	194	1
August	1,396	29	1,167	200	1
September	1,288	21	1,076	191	1
October	1,271	28	1,056	187	1
November	1,270	25	1,062	183	1
December	1,333	20	1,112	201	1

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.7.B. Biogenic Municipal Solid Waste: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	2,426	0	823	1,466	137
2010	2,287	0	819	1,316	152
2011	2,044	0	742	1,148	154
2012	1,986	0	522	1,273	190
2013	1,865	0	517	1,160	187
2014	1,955	0	650	1,104	200
2015	1,986	0	655	1,127	203
2016	2,232	0	885	1,134	213
2017	2,124	0	814	1,102	208
2018	2,050	0	752	1,109	189
2019	1,667	0	743	737	187
Year 2017					
January	203	0	72	111	20
February	171	0	64	94	12
March	187	0	75	93	19
April	173	0	69	86	18
May	182	0	69	96	18
June	185	0	68	101	16
July	185	0	72	97	17
August	196	0	77	97	22
September	154	0	63	74	17
October	155	0	59	78	18
November	166	0	64	88	15
December	168	0	63	88	17
Year 2018					
January	182	0	64	102	17
February	163	0	60	91	12
March	169	0	64	93	12
April	160	0	54	90	16
May	176	0	59	101	16
June	177	0	65	95	18
July	180	0	65	98	17
August	183	0	66	95	21
September	144	0	58	68	17
October	160	0	61	83	16
November	173	0	66	93	14
December	182	0	70	100	13
Year 2019					
January	173	0	66	92	15
February	155	0	63	77	15
March	153	0	67	70	16
April	115	0	56	43	17
May	127	0	64	52	12
June	137	0	64	59	15
July	136	0	67	53	16
August	139	0	62	56	21
September	124	0	53	56	15
October	130	0	57	58	15
November	139	0	63	61	15
December	139	0	61	62	15

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.7.C. Biogenic Municipal Solid Waste: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Thousand Tons)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	22,095	465	17,872	3,622	137
2010	21,725	402	17,621	3,549	152
2011	19,016	388	15,367	3,103	158
2012	18,954	418	14,757	3,577	203
2013	18,871	456	14,574	3,646	195
2014	18,661	444	14,459	3,551	206
2015	18,617	452	14,452	3,502	211
2016	19,226	464	14,838	3,700	224
2017	18,473	422	14,195	3,639	216
2018	18,833	467	14,611	3,557	197
2019	17,225	297	13,684	3,047	197
Year 2017					
January	1,637	35	1,266	316	20
February	1,415	19	1,098	286	12
March	1,517	36	1,165	297	19
April	1,461	35	1,113	295	18
May	1,592	36	1,215	322	19
June	1,606	38	1,243	309	17
July	1,625	41	1,244	323	18
August	1,649	47	1,259	320	23
September	1,475	41	1,135	281	18
October	1,472	33	1,124	295	19
November	1,477	30	1,138	295	15
December	1,546	32	1,195	301	18
Year 2018					
January	1,552	28	1,211	296	17
February	1,459	26	1,150	271	13
March	1,567	40	1,217	297	13
April	1,516	38	1,171	290	17
May	1,595	43	1,217	319	17
June	1,653	42	1,283	309	19
July	1,659	48	1,288	305	18
August	1,666	47	1,286	311	22
September	1,478	36	1,156	268	18
October	1,547	43	1,201	288	16
November	1,542	39	1,193	295	14
December	1,598	37	1,238	310	13
Year 2019					
January	1,495	30	1,158	291	16
February	1,313	20	1,024	254	16
March	1,408	20	1,114	258	17
April	1,350	28	1,069	235	18
May	1,465	26	1,176	249	13
June	1,461	25	1,162	258	15
July	1,504	27	1,213	247	17
August	1,535	29	1,229	256	22
September	1,412	21	1,129	246	16
October	1,401	28	1,113	245	16
November	1,409	25	1,125	244	15
December	1,472	20	1,173	263	16

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.7.D. Biogenic Municipal Solid Waste: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	146,971	3,989	126,649	16,333	0
2010	144,934	3,322	124,437	17,176	0
2011	135,241	3,433	115,841	15,933	34
2012	135,735	3,910	113,418	18,307	100
2013	135,764	4,459	111,430	19,811	64
2014	134,408	4,429	110,569	19,366	45
2015	133,117	4,295	109,691	19,068	63
2016	135,957	4,434	111,003	20,431	89
2017	130,942	4,172	106,382	20,320	67
2018	134,465	4,568	110,452	19,374	72
2019	115,114	2,454	95,638	16,946	76
Year 2017					
January	11,516	349	9,521	1,646	0
February	9,929	180	8,212	1,536	0
March	10,732	357	8,748	1,626	0
April	10,335	349	8,304	1,680	2
May	11,189	352	9,027	1,799	11
June	11,277	375	9,257	1,639	7
July	11,487	399	9,271	1,807	10
August	11,545	461	9,281	1,793	10
September	10,558	411	8,484	1,656	7
October	10,584	327	8,506	1,742	9
November	10,541	294	8,581	1,659	7
December	11,250	318	9,189	1,737	5
Year 2018					
January	11,104	278	9,239	1,583	4
February	10,426	253	8,728	1,439	7
March	11,332	400	9,296	1,628	8
April	10,904	377	8,952	1,568	7
May	11,349	431	9,212	1,702	5
June	11,807	420	9,689	1,687	10
July	11,815	477	9,677	1,651	9
August	11,828	449	9,676	1,695	8
September	10,577	348	8,681	1,540	7
October	11,083	408	9,062	1,610	3
November	10,921	371	8,955	1,595	0
December	11,319	356	9,285	1,676	2
Year 2019					
January	9,806	252	8,081	1,468	5
February	8,560	163	7,085	1,306	6
March	9,337	164	7,782	1,385	6
April	9,150	229	7,493	1,421	8
May	9,880	218	8,220	1,437	6
June	9,815	202	8,147	1,459	6
July	10,063	225	8,398	1,432	8
August	10,270	234	8,568	1,462	7
September	9,544	166	7,971	1,403	5
October	9,408	231	7,806	1,365	5
November	9,372	204	7,835	1,326	7
December	9,907	166	8,252	1,482	8

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

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Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.7.E. Biogenic Municipal Solid Waste: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	18,785	0	6,229	11,535	1,021
2010	17,502	0	6,031	10,333	1,138
2011	16,766	0	5,807	9,731	1,227
2012	16,310	0	4,180	10,615	1,515
2013	15,168	0	4,145	9,530	1,493
2014	15,783	0	5,140	9,046	1,597
2015	16,623	0	5,195	9,752	1,676
2016	18,259	0	6,877	9,665	1,717
2017	17,720	0	6,475	9,474	1,772
2018	16,724	0	5,887	9,312	1,524
2019	12,308	0	5,362	5,527	1,419
Year 2017					
January	1,779	0	585	1,007	187
February	1,457	0	514	837	106
March	1,573	0	601	811	161
April	1,451	0	535	759	157
May	1,437	0	540	749	148
June	1,491	0	523	842	126
July	1,522	0	571	811	140
August	1,629	0	612	825	191
September	1,291	0	499	649	143
October	1,305	0	470	686	150
November	1,375	0	511	743	121
December	1,409	0	512	754	143
Year 2018					
January	1,480	0	506	840	135
February	1,331	0	470	773	88
March	1,377	0	507	777	93
April	1,361	0	423	804	133
May	1,416	0	447	836	132
June	1,441	0	517	772	152
July	1,471	0	509	823	139
August	1,488	0	513	797	179
September	1,174	0	453	579	142
October	1,296	0	472	705	119
November	1,412	0	526	778	109
December	1,478	0	545	830	103
Year 2019					
January	1,306	0	476	715	115
February	1,158	0	458	590	111
March	1,136	0	491	529	116
April	842	0	396	318	128
May	914	0	444	380	90
June	994	0	455	430	109
July	974	0	471	385	119
August	1,071	0	454	449	167
September	908	0	385	411	113
October	967	0	428	417	121
November	1,009	0	456	443	110
December	1,028	0	448	460	119

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.7.F. Biogenic Municipal Solid Waste: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	165,755	3,989	132,877	27,868	1,021
2010	162,436	3,322	130,467	27,509	1,138
2011	152,007	3,433	121,648	25,664	1,262
2012	152,045	3,910	117,598	28,923	1,614
2013	150,932	4,459	115,574	29,342	1,557
2014	150,191	4,429	115,709	28,411	1,643
2015	149,740	4,295	114,886	28,821	1,739
2016	154,216	4,434	117,880	30,095	1,806
2017	148,662	4,172	112,857	29,794	1,839
2018	151,188	4,568	116,339	28,686	1,596
2019	127,422	2,454	101,000	22,473	1,495
Year 2017					
January	13,295	349	10,106	2,653	187
February	11,385	180	8,727	2,373	106
March	12,305	357	9,349	2,437	161
April	11,787	349	8,840	2,439	159
May	12,626	352	9,567	2,548	159
June	12,767	375	9,780	2,480	133
July	13,010	399	9,843	2,618	150
August	13,174	461	9,894	2,619	201
September	11,849	411	8,982	2,305	150
October	11,889	327	8,976	2,428	159
November	11,916	294	9,092	2,402	127
December	12,659	318	9,702	2,491	148
Year 2018					
January	12,585	278	9,745	2,423	139
February	11,757	253	9,198	2,211	95
March	12,709	400	9,802	2,405	102
April	12,265	377	9,375	2,372	140
May	12,765	431	9,659	2,538	137
June	13,248	420	10,206	2,459	162
July	13,286	477	10,186	2,474	148
August	13,316	449	10,189	2,492	187
September	11,751	348	9,134	2,119	149
October	12,379	408	9,534	2,315	122
November	12,332	371	9,480	2,372	109
December	12,797	356	9,830	2,506	105
Year 2019					
January	11,112	252	8,556	2,183	120
February	9,719	163	7,542	1,896	117
March	10,474	164	8,273	1,914	122
April	9,993	229	7,889	1,739	135
May	10,794	218	8,664	1,817	96
June	10,809	202	8,602	1,888	116
July	11,037	225	8,869	1,816	127
August	11,341	234	9,023	1,911	174
September	10,453	166	8,355	1,813	118
October	10,375	231	8,234	1,783	127
November	10,381	204	8,292	1,770	117
December	10,935	166	8,701	1,942	127

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

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Table 5.8.D. Other Waste Biomass: Consumption for Electricity Generation, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	24,847	3,679	13,231	3,760	4,177
2010	29,996	3,668	14,449	3,790	8,090
2011	30,771	4,488	16,115	3,816	6,352
2012	30,342	4,191	15,740	4,016	6,395
2013	29,385	2,432	13,671	4,979	8,303
2014	38,361	2,360	21,628	5,745	8,627
2015	41,785	2,853	25,058	5,935	7,939
2016	33,786	2,553	18,194	5,504	7,536
2017	35,755	1,845	22,517	5,288	6,105
2018	29,407	1,343	16,874	5,867	5,324
2019	23,947	1,133	12,606	5,668	4,540
Year 2017					
January	3,161	137	1,974	487	563
February	3,023	170	1,913	429	511
March	3,412	242	2,111	477	582
April	2,816	124	1,707	446	539
May	2,983	147	1,891	459	486
June	2,896	155	1,904	427	410
July	3,105	137	2,051	458	459
August	2,912	173	1,833	436	471
September	2,619	162	1,646	396	414
October	2,803	117	1,825	349	512
November	3,055	110	1,939	443	563
December	2,972	171	1,724	482	595
Year 2018					
January	3,130	201	1,896	507	527
February	2,990	123	1,915	474	477
March	2,880	103	1,751	495	531
April	2,858	130	1,785	479	465
May	2,721	66	1,728	475	451
June	2,431	59	1,565	481	325
July	2,025	122	1,040	486	377
August	2,036	95	1,060	495	385
September	1,833	103	934	475	322
October	2,184	125	1,090	506	463
November	2,140	112	1,041	490	496
December	2,179	102	1,069	504	504
Year 2019					
January	2,131	121	1,085	501	424
February	1,918	142	939	452	386
March	2,174	177	1,064	493	439
April	2,026	101	1,054	475	396
May	1,763	82	877	454	349
June	1,917	84	1,038	459	336
July	2,000	90	1,110	474	326
August	2,076	117	1,140	476	344
September	1,843	73	1,036	459	275
October	1,994	50	1,075	459	410
November	2,010	27	1,098	469	417
December	2,095	69	1,089	498	439

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.8.E. Other Waste Biomass: Consumption for Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	41,810	0	10,355	1,638	29,817
2010	47,153	0	8,436	1,648	37,070
2011	43,483	0	6,460	1,566	35,458
2012	46,863	0	6,914	1,796	38,153
2013	62,445	0	6,768	1,259	54,418
2014	65,201	15	6,930	1,543	56,712
2015	67,512	1	7,845	2,000	57,666
2016	57,123	18	11,252	3,569	42,284
2017	50,518	15	10,543	3,218	36,742
2018	50,338	14	10,753	3,673	35,898
2019	41,084	39	10,452	3,282	27,312
Year 2017					
January	5,626	2	1,280	346	3,999
February	4,894	0	1,002	271	3,621
March	5,352	0	1,192	291	3,869
April	4,627	7	779	256	3,586
May	3,644	2	692	264	2,686
June	2,834	0	772	276	1,785
July	3,009	0	616	235	2,158
August	3,059	1	552	269	2,238
September	2,657	2	466	226	1,963
October	4,233	0	846	221	3,166
November	5,205	1	1,125	291	3,788
December	5,379	0	1,221	274	3,884
Year 2018					
January	5,543	0	1,334	317	3,892
February	5,058	0	1,226	316	3,516
March	5,492	0	1,313	327	3,852
April	4,392	5	656	315	3,416
May	3,563	6	462	321	2,774
June	2,468	1	534	305	1,627
July	2,687	0	551	292	1,844
August	2,720	1	465	318	1,936
September	2,733	0	550	295	1,888
October	4,872	0	1,061	297	3,514
November	5,269	0	1,332	306	3,631
December	5,541	0	1,270	264	4,007
Year 2019					
January	4,576	12	1,166	288	3,109
February	4,339	11	1,149	238	2,941
March	4,299	6	1,178	335	2,780
April	3,245	7	945	268	2,024
May	2,579	0	630	252	1,697
June	2,729	1	510	262	1,957
July	2,259	0	519	253	1,486
August	2,361	0	552	278	1,532
September	2,009	0	451	275	1,283
October	3,987	0	1,092	300	2,595
November	4,289	0	1,151	256	2,883
December	4,413	0	1,109	278	3,026

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

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Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.8.F. Other Waste Biomass: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2009 - 2019 (Billion Btus)

Period	Total (all sectors)	Electric Power Sector		Commercial Sector	Industrial Sector
		Electric Utilities	Independent Power Producers		
Annual Totals					
2009	66,658	3,679	23,586	5,398	33,994
2010	77,150	3,668	22,884	5,438	45,159
2011	74,255	4,488	22,574	5,382	41,810
2012	77,205	4,191	22,654	5,812	44,548
2013	91,830	2,432	20,439	6,238	62,721
2014	103,561	2,375	28,558	7,289	65,339
2015	109,297	2,854	32,903	7,935	65,605
2016	90,909	2,571	29,446	9,073	49,820
2017	86,274	1,860	33,060	8,506	42,848
2018	79,745	1,357	27,627	9,540	41,221
2019	65,031	1,172	23,057	8,950	31,852
Year 2017					
January	8,787	138	3,254	833	4,562
February	7,917	171	2,915	699	4,132
March	8,764	242	3,303	769	4,451
April	7,443	131	2,485	701	4,125
May	6,627	149	2,584	723	3,172
June	5,730	155	2,677	702	2,196
July	6,113	137	2,667	692	2,617
August	5,972	174	2,385	705	2,709
September	5,275	164	2,111	622	2,377
October	7,035	117	2,671	569	3,678
November	8,260	111	3,064	734	4,351
December	8,351	172	2,945	756	4,479
Year 2018					
January	8,673	201	3,230	824	4,419
February	8,048	124	3,141	790	3,993
March	8,372	103	3,064	822	4,383
April	7,251	135	2,441	794	3,881
May	6,284	72	2,190	797	3,225
June	4,898	60	2,100	786	1,953
July	4,712	122	1,591	778	2,221
August	4,756	96	1,525	813	2,321
September	4,566	103	1,483	770	2,210
October	7,057	125	2,151	803	3,977
November	7,409	112	2,373	796	4,128
December	7,720	102	2,338	768	4,511
Year 2019					
January	6,706	133	2,251	788	3,533
February	6,257	153	2,088	689	3,327
March	6,473	183	2,242	828	3,219
April	5,270	108	1,999	743	2,420
May	4,343	83	1,508	707	2,046
June	4,646	85	1,548	721	2,293
July	4,258	90	1,629	727	1,812
August	4,438	117	1,691	753	1,876
September	3,852	73	1,487	734	1,558
October	5,981	51	2,166	759	3,005
November	6,300	27	2,249	724	3,299
December	6,508	69	2,198	776	3,465

Notes: Beginning with the collection of Form EIA-923 in January 2008, the methodology to allocate total fuel consumption for electricity generation and consumption for useful thermal output was changed.

The new methodology was retroactively applied to 2004-2007 data. See the Technical Notes (Appendix C) for further information. See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report.

Table 5.9. Consumption of Coal for Electricity Generation by State by Sector, 2019 and 2018 (Thousand Tons)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	224	531	-58.0%	159	294	61	233	0	0	4	4
Connecticut	48	221	-78.0%	0	0	48	221	0	0	0	0
Maine	17	16	3.1%	0	0	13	12	0	0	4	4
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	159	294	-46.0%	159	294	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	20,049	24,113	-17.0%	0	0	20,027	24,075	0	0	22	39
New Jersey	440	504	-13.0%	0	0	440	504	0	0	0	0
New York	187	276	-32.0%	0	0	187	272	0	0	0	4
Pennsylvania	19,422	23,334	-17.0%	0	0	19,400	23,299	0	0	22	35
East North Central	116,185	144,074	-19.0%	69,048	86,841	46,535	56,524	15	18	587	691
Illinois	29,617	36,013	-18.0%	1,923	2,254	27,230	33,239	4	9	460	511
Indiana	30,906	39,080	-21.0%	28,888	36,910	2,008	2,161	10	9	0	0
Michigan	21,257	24,235	-12.0%	21,056	23,991	192	212	0	0	9	33
Ohio	19,596	25,122	-22.0%	2,490	4,209	17,105	20,912	0	0	0	1
Wisconsin	14,809	19,624	-25.0%	14,692	19,477	0	0	0	0	117	147
West North Central	103,229	118,759	-13.0%	102,153	117,565	0	0	20	21	1,056	1,173
Iowa	12,710	16,187	-21.0%	12,190	15,673	0	0	17	19	502	495
Kansas	11,535	13,176	-12.0%	11,535	13,176	0	0	0	0	0	0
Minnesota	10,491	13,675	-23.0%	10,341	13,421	0	0	1	0	149	253
Missouri	32,663	36,978	-12.0%	32,661	36,976	0	0	2	2	0	0
Nebraska	13,517	14,834	-8.9%	13,149	14,443	0	0	0	0	367	391
North Dakota	20,682	22,457	-7.9%	20,645	22,423	0	0	0	0	37	34
South Dakota	1,631	1,453	12.0%	1,631	1,453	0	0	0	0	0	0
South Atlantic	69,979	85,873	-19.0%	62,386	75,137	7,422	10,538	10	12	161	186
Delaware	85	167	-49.0%	0	0	85	167	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	9,542	13,384	-29.0%	9,533	13,365	0	0	0	0	9	18
Georgia	13,591	16,996	-20.0%	13,552	16,953	0	0	0	0	39	43
Maryland	2,556	4,382	-42.0%	0	0	2,548	4,367	0	0	8	15
North Carolina	12,349	12,564	-1.7%	12,281	12,480	31	46	10	11	27	28
South Carolina	6,316	8,144	-22.0%	6,267	8,141	47	0	0	0	2	3
Virginia	1,781	4,565	-61.0%	1,658	4,200	45	284	1	1	76	79
West Virginia	23,760	25,671	-7.4%	19,094	19,996	4,666	5,675	0	0	0	0
East South Central	52,523	59,619	-12.0%	49,851	56,472	2,563	2,996	0	0	109	151
Alabama	14,250	16,249	-12.0%	14,245	16,235	0	0	0	0	5	14
Kentucky	24,974	28,368	-12.0%	24,974	28,368	0	0	0	0	0	0
Mississippi	3,833	4,506	-15.0%	1,271	1,510	2,563	2,996	0	0	0	0
Tennessee	9,466	10,496	-9.8%	9,362	10,359	0	0	0	0	104	137
West South Central	87,629	111,125	-21.0%	44,548	59,876	43,007	51,127	0	0	74	123
Arkansas	13,771	17,461	-21.0%	11,552	14,617	2,211	2,835	0	0	8	8
Louisiana	5,276	8,110	-35.0%	3,979	5,339	1,297	2,771	0	0	0	0
Oklahoma	5,271	9,656	-45.0%	5,206	8,348	0	1,193	0	0	66	114
Texas	63,311	75,899	-17.0%	23,812	31,572	39,499	44,327	0	0	0	0
Mountain	80,167	86,299	-7.1%	69,526	76,223	10,547	9,973	0	0	93	104
Arizona	12,875	16,814	-23.0%	12,875	16,814	0	0	0	0	0	0
Colorado	14,517	15,269	-4.9%	14,515	15,266	0	0	0	0	1	3
Idaho	4	4	1.0%	0	0	0	0	0	0	4	4
Montana	9,280	8,738	6.2%	261	233	9,014	8,500	0	0	5	5
Nevada	1,551	1,412	9.9%	945	816	606	596	0	0	0	0
New Mexico	8,148	7,262	12.0%	8,148	7,262	0	0	0	0	0	0
Utah	11,891	12,332	-3.6%	11,489	11,927	402	405	0	0	0	0
Wyoming	21,901	24,468	-10.0%	21,293	23,905	525	472	0	0	83	91
Pacific Contiguous	6,359	4,590	39.0%	1,499	898	4,804	3,628	0	0	55	63
California	49	57	-14.0%	0	0	0	0	0	0	49	57
Oregon	1,499	898	67.0%	1,499	898	0	0	0	0	0	0
Washington	4,811	3,635	32.0%	0	0	4,804	3,628	0	0	7	7
Pacific Noncontiguous	1,273	1,230	3.4%	370	312	872	882	32	36	0	0
Alaska	556	496	12.0%	370	312	155	148	32	36	0	0
Hawaii	717	734	-2.4%	0	0	717	734	0	0	0	0
U.S. Total	537,616	636,213	-15.0%	399,541	473,617	135,838	159,976	76	87	2,161	2,534

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells. Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923. Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding. Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 5.10. Consumption of Petroleum Liquids for Electricity Generation by State, by Sector, 2019 and 2018 (Thousand Barrels)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	390	2,109	-81.0%	55	345	284	1,713	38	36	14	16
Connecticut	79	601	-87.0%	9	9	64	588	3	3	2	1
Maine	53	317	-83.0%	0	0	36	298	8	6	10	13
Massachusetts	190	767	-75.0%	16	124	161	631	12	10	1	2
New Hampshire	49	298	-84.0%	26	201	10	82	13	15	0	0
Rhode Island	16	115	-86.0%	0	0	13	113	2	2	1	0
Vermont	4	10	-64.0%	4	10	0	0	0	0	0	0
Middle Atlantic	1,437	4,464	-68.0%	468	1,066	905	3,306	27	36	37	55
New Jersey	115	469	-75.0%	3	6	110	458	2	4	1	1
New York	896	2,596	-65.0%	464	1,057	403	1,485	14	20	15	35
Pennsylvania	426	1,398	-70.0%	0	3	392	1,364	11	12	22	19
East North Central	952	1,126	-15.0%	605	623	331	473	4	8	12	22
Illinois	97	106	-8.9%	16	16	81	90	0	0	0	0
Indiana	241	233	3.4%	234	214	0	1	NM	1	7	18
Michigan	185	254	-27.0%	182	247	0	0	2	6	1	1
Ohio	315	450	-30.0%	70	66	242	380	1	1	3	3
Wisconsin	114	83	38.0%	104	80	8	2	1	0	0	1
West North Central	796	697	14.0%	773	647	20	47	2	2	2	1
Iowa	135	129	4.2%	128	121	7	7	0	0	0	0
Kansas	175	118	48.0%	175	118	0	0	0	0	0	0
Minnesota	101	98	3.1%	85	56	13	39	2	2	1	1
Missouri	243	223	8.9%	243	223	0	0	0	0	0	0
Nebraska	41	34	21.0%	41	34	0	0	0	0	0	0
North Dakota	67	74	-9.6%	67	74	0	0	0	0	0	0
South Dakota	33	20	70.0%	33	20	0	0	0	0	0	0
South Atlantic	2,226	6,283	-65.0%	1,661	4,460	350	1,530	148	167	66	125
Delaware	35	333	-89.0%	1	12	35	321	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	547	1,031	-47.0%	506	983	26	27	0	0	16	21
Georgia	188	497	-62.0%	140	252	9	176	8	7	30	62
Maryland	173	549	-68.0%	4	11	166	533	1	2	1	3
North Carolina	355	1,231	-71.0%	335	1,128	9	77	2	5	9	21
South Carolina	154	609	-75.0%	140	586	7	11	0	0	8	12
Virginia	543	1,744	-69.0%	306	1,225	97	359	137	154	4	6
West Virginia	230	290	-20.0%	229	264	2	26	0	0	0	0
East South Central	500	603	-17.0%	481	520	8	69	0	0	10	13
Alabama	35	146	-76.0%	21	69	8	69	0	0	6	8
Kentucky	167	179	-6.8%	167	179	0	0	0	0	0	0
Mississippi	25	50	-49.0%	24	47	0	0	0	0	2	3
Tennessee	272	228	20.0%	269	225	1	0	0	0	2	2
West South Central	264	247	6.8%	197	191	56	47	1	1	10	8
Arkansas	81	59	38.0%	58	46	20	10	0	0	3	3
Louisiana	48	41	18.0%	39	41	9	0	0	0	0	0
Oklahoma	35	33	7.0%	33	31	0	0	0	0	2	2
Texas	100	115	-13.0%	66	74	27	37	1	1	5	3
Mountain	1,063	370	187.0%	1,025	326	37	44	0	0	0	0
Arizona	124	95	31.0%	124	95	0	0	0	0	0	0
Colorado	24	34	-30.0%	24	33	0	1	0	0	0	0
Idaho	0	0	132.0%	0	0	0	0	0	0	0	0
Montana	34	37	-7.4%	4	1	30	35	0	0	0	0
Nevada	25	21	16.0%	21	16	4	5	0	0	0	0
New Mexico	703	42	NM	703	42	0	0	0	0	0	0
Utah	70	64	9.5%	67	62	3	2	0	0	0	0
Wyoming	84	78	7.6%	83	78	0	0	0	0	0	0
Pacific Contiguous	147	164	-10.0%	85	80	39	35	2	2	21	47
California	101	120	-16.0%	67	64	20	17	1	1	13	38
Oregon	15	9	70.0%	14	9	0	0	0	0	0	0
Washington	31	35	-10.0%	3	7	19	18	0	0	9	9
Pacific Noncontiguous	13,059	12,552	4.0%	10,327	10,086	2,434	2,203	27	16	272	246
Alaska	1,608	1,454	11.0%	1,530	1,388	5	0	8	6	65	59
Hawaii	11,451	11,098	3.2%	8,797	8,698	2,429	2,203	19	10	207	187
U.S. Total	20,836	28,614	-27.0%	15,677	18,345	4,464	9,467	251	269	444	534

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells. Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923. Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding. Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 5.11. Consumption of Petroleum Coke for Electricity Generation by State, by Sector, 2019 and 2018 (Thousand Tons)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	0	0	--	0	0	0	0	0	0	0	0
Connecticut	0	0	--	0	0	0	0	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	0	0	--	0	0	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	12	20	-40.0%	0	0	0	0	0	0	12	20
New Jersey	8	7	12.0%	0	0	0	0	0	0	8	7
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	5	14	-65.0%	0	0	0	0	0	0	5	14
East North Central	773	1,160	-33.0%	389	558	316	550	0	0	68	52
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	418	564	-26.0%	350	513	0	0	0	0	68	51
Ohio	316	551	-43.0%	0	0	316	550	0	0	0	1
Wisconsin	39	45	-12.0%	39	45	0	0	0	0	0	0
West North Central	12	7	62.0%	0	0	0	0	1	2	10	5
Iowa	12	7	62.0%	0	0	0	0	1	2	10	5
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	0	0	--	0	0	0	0	0	0	0	0
Missouri	0	0	--	0	0	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	466	594	-21.0%	433	559	0	0	0	0	33	35
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	433	559	-22.0%	433	559	0	0	0	0	0	0
Georgia	33	35	-5.6%	0	0	0	0	0	0	33	35
Maryland	0	0	--	0	0	0	0	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	0	0	--	0	0	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	0	0	--	0	0	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	0	0	--	0	0	0	0	0	0	0	0
West South Central	1,297	1,687	-23.0%	1,244	1,624	0	0	0	0	53	64
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	1,246	1,646	-24.0%	1,244	1,624	0	0	0	0	2	23
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	51	41	24.0%	0	0	0	0	0	0	51	41
Mountain	163	154	5.6%	0	0	163	154	0	0	0	0
Arizona	0	0	--	0	0	0	0	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	163	154	5.6%	0	0	163	154	0	0	0	0
Nevada	0	0	--	0	0	0	0	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	0	0	--	0	0	0	0	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	0	0	--	0	0	0	0	0	0	0	0
California	0	0	--	0	0	0	0	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	0	0	--	0	0	0	0	0	0	0	0
Pacific Noncontiguous	0	0	--	0	0	0	0	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	2,724	3,623	-25.0%	2,067	2,740	478	704	1	2	177	177

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 5.12. Consumption of Natural Gas for Electricity Generation by State, by Sector, 2019 and 2018 (Million Cubic Feet)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	351,302	371,172	-5.4%	1,540	2,658	334,916	353,979	5,891	5,862	8,956	8,673
Connecticut	149,034	141,310	5.5%	496	522	142,289	134,752	2,497	2,325	3,752	3,711
Maine	11,730	15,859	-26.0%	0	0	9,361	13,718	148	148	2,221	1,993
Massachusetts	111,604	133,263	-16.0%	952	1,724	106,334	127,086	2,964	3,118	1,353	1,334
New Hampshire	25,693	21,790	18.0%	79	400	25,381	21,163	45	32	188	195
Rhode Island	53,225	58,934	-9.7%	0	0	51,551	57,260	231	234	1,442	1,440
Vermont	17	16	8.1%	12	11	0	0	5	5	0	0
Middle Atlantic	1,317,087	1,210,777	8.8%	89,507	96,344	1,204,391	1,091,715	8,791	8,068	14,398	14,649
New Jersey	277,795	270,279	2.8%	1,582	1,602	272,204	265,520	1,734	1,094	2,276	2,063
New York	365,544	401,223	-8.9%	87,886	94,681	267,693	296,061	6,269	6,305	3,696	4,176
Pennsylvania	673,749	539,276	25.0%	38	62	664,495	530,134	789	670	8,427	8,410
East North Central	1,168,361	1,028,576	14.0%	404,987	379,177	725,680	615,520	7,650	7,958	30,043	25,922
Illinois	172,502	141,840	22.0%	11,739	10,478	155,078	125,035	1,823	2,094	3,862	4,233
Indiana	230,037	200,862	15.0%	101,345	90,971	111,896	96,367	1,028	870	15,768	12,653
Michigan	253,869	234,395	8.3%	97,842	91,603	149,348	136,240	3,167	3,195	3,512	3,358
Ohio	363,846	322,524	13.0%	62,285	72,293	299,079	247,949	1,102	1,218	1,379	1,064
Wisconsin	148,107	128,955	15.0%	131,775	113,832	10,280	9,929	530	580	5,522	4,614
West North Central	260,969	224,073	16.0%	215,833	194,749	39,189	24,193	1,806	1,604	4,140	3,527
Iowa	48,906	49,227	-0.7%	45,674	46,478	0	76	616	492	2,616	2,181
Kansas	28,782	28,767	0.1%	28,232	28,281	0	0	0	0	550	486
Minnesota	86,011	61,174	41.0%	65,551	52,642	19,427	7,463	445	492	588	578
Missouri	62,142	56,961	9.1%	41,554	39,575	19,762	16,654	707	586	118	146
Nebraska	12,076	9,230	31.0%	12,037	9,196	0	0	38	34	0	0
North Dakota	13,817	9,615	44.0%	13,686	9,479	0	0	0	0	131	136
South Dakota	9,235	9,099	1.5%	9,099	9,099	0	0	0	0	136	0
South Atlantic	2,817,330	2,673,712	5.4%	2,300,179	2,164,942	474,308	471,691	12,952	10,387	29,890	26,693
Delaware	33,688	40,378	-17.0%	319	282	27,606	35,931	0	0	5,764	4,165
District of Columbia	1,511	614	146.0%	0	0	0	0	1,511	614	0	0
Florida	1,327,986	1,272,791	4.3%	1,262,062	1,201,253	57,158	63,351	107	151	8,659	8,036
Georgia	430,234	376,880	14.0%	327,045	284,254	99,660	88,999	1	0	3,528	3,626
Maryland	105,316	105,437	-0.1%	22,900	26,042	72,319	70,383	9,786	8,567	312	446
North Carolina	305,954	331,804	-7.8%	241,074	280,691	62,620	49,428	1,457	974	803	711
South Carolina	178,750	169,642	5.4%	168,922	143,129	8,941	25,704	3	2	884	807
Virginia	414,935	364,055	14.0%	273,670	227,378	133,755	129,086	87	79	7,423	7,512
West Virginia	18,955	12,112	56.0%	4,188	1,913	12,249	8,809	0	0	2,519	1,391
East South Central	1,017,088	1,010,560	0.6%	742,039	694,596	252,074	301,053	962	1,079	22,013	13,832
Alabama	414,117	421,586	-1.8%	156,800	155,114	247,450	259,291	0	0	9,866	7,181
Kentucky	113,334	113,487	-0.1%	107,944	105,040	4,426	7,616	0	0	965	831
Mississippi	361,588	368,214	-1.8%	358,718	331,487	51	34,009	0	40	2,819	2,678
Tennessee	128,049	107,273	19.0%	118,577	102,955	148	136	962	1,040	8,363	3,142
West South Central	2,878,287	2,637,243	9.1%	1,113,512	1,009,781	1,336,517	1,231,936	4,787	4,233	423,471	391,292
Arkansas	155,904	148,397	5.1%	147,395	139,217	6,476	7,221	479	431	1,554	1,528
Louisiana	500,639	442,731	13.0%	299,170	266,197	37,775	28,935	718	744	162,977	146,855
Oklahoma	341,019	320,293	6.5%	226,720	205,644	110,767	111,483	0	0	3,532	3,166
Texas	1,880,725	1,725,822	9.0%	440,226	398,722	1,181,500	1,084,297	3,590	3,058	255,409	239,744
Mountain	897,474	808,494	11.0%	725,201	654,483	158,146	138,452	2,252	2,173	11,876	13,386
Arizona	356,797	285,200	25.0%	273,400	226,923	82,798	57,666	598	611	0	0
Colorado	127,897	122,889	4.1%	107,650	100,913	19,856	21,648	35	5	356	322
Idaho	32,193	24,271	33.0%	19,222	12,610	12,187	11,073	168	170	616	419
Montana	5,510	5,153	6.9%	4,067	3,953	1,428	1,176	0	0	15	24
Nevada	191,553	198,627	-3.6%	173,486	180,440	15,166	15,129	262	258	2,639	2,800
New Mexico	104,014	99,161	4.9%	77,649	67,166	25,781	31,205	530	509	54	282
Utah	72,335	66,844	8.2%	66,472	60,620	914	541	658	619	4,291	5,063
Wyoming	7,175	6,350	13.0%	3,255	1,858	16	15	0	0	3,905	4,477
Pacific Contiguous	867,974	842,767	3.0%	351,183	329,059	433,576	435,397	10,484	11,284	72,731	67,028
California	615,344	646,381	-4.8%	209,860	220,039	326,983	349,196	10,226	10,995	68,275	66,150
Oregon	143,735	123,000	17.0%	69,066	60,935	73,945	61,412	227	211	497	442
Washington	108,895	73,386	48.0%	72,257	48,085	32,648	24,789	31	77	3,959	435
Pacific Noncontiguous	24,687	25,669	-3.8%	24,401	25,393	0	0	0	3	286	273
Alaska	24,687	25,669	-3.8%	24,401	25,393	0	0	0	3	286	273
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	11,600,558	10,833,043	7.1%	5,968,380	5,551,181	4,958,798	4,663,935	55,575	52,650	617,805	565,276

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells. Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923. Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding. Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Table 5.13. Consumption of Landfill Gas for Electricity Generation by State, by Sector, 2019 and 2018 (Million Cubic Feet)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	12,339	11,090	11.0%	1,410	0	10,711	10,850	217	240	0	0
Connecticut	169	266	-36.0%	0	0	169	266	0	0	0	0
Maine	682	688	-0.9%	0	0	682	688	0	0	0	0
Massachusetts	3,633	4,023	-9.7%	0	0	3,633	4,023	0	0	0	0
New Hampshire	1,958	1,699	15.0%	0	0	1,741	1,459	217	240	0	0
Rhode Island	4,229	4,133	2.3%	0	0	4,229	4,133	0	0	0	0
Vermont	1,668	281	494.0%	1,410	0	257	281	0	0	0	0
Middle Atlantic	48,526	51,470	-5.7%	0	0	46,743	49,791	673	537	1,110	1,142
New Jersey	6,693	7,398	-9.5%	0	0	6,510	7,243	183	155	0	0
New York	16,168	16,333	-1.0%	0	0	16,168	16,333	0	0	0	0
Pennsylvania	25,665	27,739	-7.5%	0	0	24,064	26,215	491	382	1,110	1,142
East North Central	61,921	62,210	-0.5%	10,372	9,596	50,982	52,076	321	283	246	255
Illinois	11,432	11,915	-4.1%	3,202	2,675	8,230	9,240	0	0	0	0
Indiana	8,317	8,124	2.4%	7,170	6,922	1,147	1,202	0	0	0	0
Michigan	21,180	20,083	5.5%	0	0	21,180	20,083	0	0	0	0
Ohio	10,990	11,338	-3.1%	0	0	10,990	11,338	0	0	0	0
Wisconsin	10,002	10,751	-7.0%	0	0	9,435	10,213	321	283	246	255
West North Central	8,716	9,885	-12.0%	3,008	3,204	5,708	6,681	0	0	0	0
Iowa	2,242	2,434	-7.9%	0	0	2,242	2,434	0	0	0	0
Kansas	1,390	1,501	-7.5%	0	0	1,390	1,501	0	0	0	0
Minnesota	1,694	2,413	-30.0%	671	683	1,024	1,730	0	0	0	0
Missouri	1,886	1,857	1.6%	833	841	1,052	1,016	0	0	0	0
Nebraska	1,504	1,680	-10.0%	1,504	1,680	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	50,216	53,351	-5.9%	3,785	4,154	43,366	45,449	1,708	2,139	1,358	1,609
Delaware	1,305	1,159	13.0%	0	0	1,220	1,048	0	0	86	111
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	10,573	11,366	-7.0%	1,575	1,693	8,998	9,672	0	0	0	0
Georgia	6,096	6,748	-9.7%	0	0	5,949	6,651	0	0	147	97
Maryland	2,251	2,666	-16.0%	0	0	1,471	1,777	780	889	0	0
North Carolina	11,378	11,313	0.6%	0	0	10,641	10,269	737	1,044	0	0
South Carolina	3,493	4,155	-16.0%	2,134	2,407	233	347	0	0	1,126	1,401
Virginia	15,120	15,943	-5.2%	75	54	14,854	15,684	191	205	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	5,405	5,292	2.1%	2,212	2,363	3,193	2,929	0	0	0	0
Alabama	1,045	824	27.0%	0	0	1,045	824	0	0	0	0
Kentucky	2,455	2,562	-4.2%	2,212	2,363	243	199	0	0	0	0
Mississippi	236	231	2.1%	0	0	236	231	0	0	0	0
Tennessee	1,669	1,675	-0.4%	0	0	1,669	1,675	0	0	0	0
West South Central	11,627	13,020	-11.0%	0	0	11,438	12,417	189	603	0	0
Arkansas	1,472	1,097	34.0%	0	0	1,472	1,097	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	453	470	-3.6%	0	0	453	470	0	0	0	0
Texas	9,702	11,453	-15.0%	0	0	9,513	10,850	189	603	0	0
Mountain	6,774	6,454	5.0%	332	327	5,720	5,573	721	554	0	0
Arizona	747	950	-21.0%	0	0	747	950	0	0	0	0
Colorado	1,283	1,360	-5.7%	0	0	1,283	1,360	0	0	0	0
Idaho	945	683	38.0%	332	327	113	157	500	199	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	1,716	1,504	14.0%	0	0	1,716	1,504	0	0	0	0
New Mexico	409	168	144.0%	0	0	409	168	0	0	0	0
Utah	1,674	1,789	-6.4%	0	0	1,453	1,435	221	354	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	51,258	56,662	-9.5%	1,606	3,936	36,959	37,747	12,332	14,634	361	346
California	44,573	48,145	-7.4%	108	920	32,125	32,654	11,980	14,225	361	346
Oregon	5,631	5,758	-2.2%	1,498	1,453	3,780	3,895	352	409	0	0
Washington	1,053	2,760	-62.0%	0	1,562	1,053	1,198	0	0	0	0
Pacific Noncontiguous	712	801	-11.0%	0	0	0	0	712	801	0	0
Alaska	712	801	-11.0%	0	0	0	0	712	801	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	257,494	270,235	-4.7%	22,726	23,580	214,819	223,513	16,874	19,790	3,075	3,352

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Table 5.14. Consumption of Biogenic Municipal Solid Waste for Electricity Generation by State, by Sector, 2019 and 2018 (Thousand Tons)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	3,391,400	3,567,698	-4.9%	0	0	3,251,436	3,393,693	139,964	174,005	0	0
Connecticut	1,152,812	1,142,714	0.9%	0	0	1,152,812	1,142,714	0	0	0	0
Maine	247,953	286,752	-14.0%	0	0	107,989	112,747	139,964	174,005	0	0
Massachusetts	1,874,608	2,015,957	-7.0%	0	0	1,874,608	2,015,957	0	0	0	0
New Hampshire	116,027	122,275	-5.1%	0	0	116,027	122,275	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	5,092,928	5,448,704	-6.5%	0	0	3,952,827	4,292,063	1,140,101	1,156,641	0	0
New Jersey	1,280,530	1,431,562	-11.0%	0	0	950,747	1,087,763	329,783	343,799	0	0
New York	1,958,517	2,054,078	-4.7%	0	0	1,388,113	1,495,386	570,404	558,692	0	0
Pennsylvania	1,853,881	1,963,064	-5.6%	0	0	1,613,967	1,708,914	239,914	254,150	0	0
East North Central	179,378	233,587	-23.0%	35,106	34,080	0	0	144,272	199,507	0	0
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	18,485	19,959	-7.4%	0	0	0	0	18,485	19,959	0	0
Michigan	125,787	179,548	-30.0%	0	0	0	0	125,787	179,548	0	0
Ohio	0	0	--	0	0	0	0	0	0	0	0
Wisconsin	35,106	34,080	3.0%	35,106	34,080	0	0	0	0	0	0
West North Central	482,950	672,132	-28.0%	262,383	432,826	209,879	227,847	10,688	11,459	0	0
Iowa	0	0	--	0	0	0	0	0	0	0	0
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	482,950	672,132	-28.0%	262,383	432,826	209,879	227,847	10,688	11,459	0	0
Missouri	0	0	--	0	0	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	5,297,915	5,700,696	-7.1%	0	0	4,876,934	5,248,306	420,981	452,390	0	0
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	3,545,259	3,878,338	-8.6%	0	0	3,545,259	3,878,338	0	0	0	0
Georgia	0	0	--	0	0	0	0	0	0	0	0
Maryland	610,344	648,455	-5.9%	0	0	610,344	648,455	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	1,142,312	1,173,903	-2.7%	0	0	721,331	721,513	420,981	452,390	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	0	0	--	0	0	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	0	0	--	0	0	0	0	0	0	0	0
West South Central	10,086	8,805	15.0%	0	0	0	0	0	0	10,086	8,805
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	10,086	8,805	15.0%	0	0	0	0	0	0	10,086	8,805
Texas	0	0	--	0	0	0	0	0	0	0	0
Mountain	0	0	--	0	0	0	0	0	0	0	0
Arizona	0	0	--	0	0	0	0	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	0	0	--	0	0	0	0	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	0	0	--	0	0	0	0	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	650,245	697,555	-6.8%	0	0	650,245	697,555	0	0	0	0
California	385,958	426,524	-9.5%	0	0	385,958	426,524	0	0	0	0
Oregon	114,155	112,909	1.1%	0	0	114,155	112,909	0	0	0	0
Washington	150,132	158,122	-5.1%	0	0	150,132	158,122	0	0	0	0
Pacific Noncontiguous	453,635	454,307	-0.1%	0	0	0	0	453,635	454,307	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	453,635	454,307	-0.1%	0	0	0	0	453,635	454,307	0	0
U.S. Total	15,558,537	16,783,484	-7.3%	297,489	466,906	12,941,321	13,859,464	2,309,641	2,448,309	10,086	8,805

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells. Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923. Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding. Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

Chapter 6

Fossil Fuel Stocks for Electricity Generation

Table 6.1. Stocks of Coal, Petroleum Liquids, and Petroleum Coke: Electric Power Sector, 2009 - 2019

Period	Electric Power Sector			Electric Utilities			Independent Power Producers		
	Coal (Thousand Tons)	Petroleum Liquids (Thousand Barrels)	Petroleum Coke (Thousand Tons)	Coal (Thousand Tons)	Petroleum Liquids (Thousand Barrels)	Petroleum Coke (Thousand Tons)	Coal (Thousand Tons)	Petroleum Liquids (Thousand Barrels)	Petroleum Coke (Thousand Tons)
End of Year Stocks									
2009	189,467	38,604	1,394	154,815	25,205	1,194	34,652	13,399	201
2010	174,917	34,841	1,019	143,744	23,934	850	31,173	10,908	168
2011	172,387	33,742	508	142,103	24,544	404	30,284	9,198	104
2012	185,116	30,862	495	150,942	22,513	414	34,174	8,349	81
2013	147,884	30,387	390	120,792	21,208	303	27,092	9,179	86
2014	151,548	32,322	827	116,684	21,304	686	34,864	11,018	142
2015	195,548	31,694	1,340	153,226	20,253	1,163	42,322	11,441	177
2016	162,009	30,593	845	130,885	19,767	603	31,124	10,827	241
2017	137,687	28,089	864	114,782	19,047	692	22,905	9,041	171
2018	102,793	25,977	539	84,728	16,553	521	18,065	9,423	19
2019	128,180	25,960	471	104,274	16,435	428	23,906	9,525	43
Year 2017, End of Month Stocks									
January	156,214	30,536	768	125,221	19,681	540	30,994	10,855	228
February	160,502	30,293	756	128,051	19,517	544	32,451	10,776	212
March	161,815	30,939	785	128,645	20,342	558	33,170	10,597	227
April	163,937	30,688	844	130,461	20,268	622	33,475	10,420	221
May	162,542	30,326	772	129,300	19,893	562	33,242	10,433	210
June	158,014	29,974	742	126,564	19,823	535	31,450	10,151	207
July	145,811	29,798	724	117,584	19,686	544	28,228	10,111	180
August	141,204	29,533	749	114,228	19,491	569	26,976	10,042	181
September	139,571	29,123	798	113,247	19,319	624	26,324	9,805	173
October	141,463	28,976	862	114,939	19,119	683	26,524	9,857	179
November	143,424	29,227	859	117,758	19,397	677	25,666	9,830	182
December	137,687	28,089	864	114,782	19,047	692	22,905	9,041	171
Year 2018, End of Month Stocks									
January	123,235	25,853	720	103,761	17,653	579	19,474	8,200	141
February	120,526	26,831	692	101,532	18,213	561	18,994	8,618	131
March	126,008	26,763	736	106,377	18,301	612	19,631	8,462	124
April	128,571	26,608	731	107,870	18,236	647	20,701	8,372	84
May	127,982	26,794	709	107,176	18,315	648	20,806	8,479	61
June	121,041	26,494	591	101,498	17,964	526	19,544	8,530	65
July	110,348	25,912	668	93,099	17,412	614	17,249	8,500	53
August	103,744	24,815	625	87,944	16,602	580	15,800	8,213	45
September	100,384	24,595	608	84,696	16,378	557	15,688	8,217	51
October	104,855	24,591	541	87,394	16,183	511	17,461	8,409	30
November	104,075	24,720	557	86,252	16,114	540	17,823	8,606	16
December	102,793	25,977	539	84,728	16,553	521	18,065	9,423	19
Year 2019, End of Month Stocks									
January	99,147	25,791	528	81,553	16,464	518	17,594	9,327	9
February	98,639	26,154	505	81,173	16,781	494	17,466	9,373	11
March	96,933	26,202	503	79,485	16,870	482	17,449	9,332	21
April	108,089	26,330	513	88,215	16,994	500	19,873	9,336	13
May	115,712	26,407	444	93,476	17,063	434	22,237	9,344	10
June	116,876	26,185	388	93,767	16,862	381	23,108	9,323	7
July	110,672	25,827	354	89,504	16,598	347	21,168	9,230	8
August	110,278	25,208	380	89,054	16,128	372	21,224	9,080	8
September	110,626	25,448	292	89,630	16,352	281	20,995	9,096	11
October	118,574	25,413	292	96,205	16,359	277	22,369	9,055	16
November	122,364	25,720	464	99,470	16,480	407	22,894	9,240	57
December	128,180	25,960	471	104,274	16,435	428	23,906	9,525	43

Notes: See Glossary for definitions. Values are final.

See Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms. Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms.

Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following: Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report; Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report; and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

**Table 6.2 Stocks of Coal, Petroleum Liquids, and Petroleum Coke:
Electric Power Sector, by State, 2019 and 2018**

Census Division and State	Coal (Thousand Tons)			Petroleum Liquids (Thousand Barrels)			Petroleum Coke (Thousand Tons)		
	December 2019	December 2018	Percentage Change	December 2019	December 2018	Percentage Change	December 2019	December 2018	Percentage Change
New England	465	605	-23.2%	3,409	3,385	0.7%	0	0	--
Connecticut	W	W	W	1,202	1,227	-2.0%	0	0	--
Maine	0	0	--	231	197	17.3%	0	0	--
Massachusetts	0	0	--	1,386	1,354	2.4%	0	0	--
New Hampshire	W	W	W	345	374	-7.9%	0	0	--
Rhode Island	0	W	W	207	195	6.5%	0	0	--
Vermont	0	0	--	NM	39	NM	0	0	--
Middle Atlantic	4,612	3,511	31.4%	5,671	5,217	8.7%	0	0	--
New Jersey	W	W	W	764	644	18.6%	0	0	--
New York	W	W	W	3,504	3,234	8.3%	0	0	--
Pennsylvania	4,427	3,261	35.8%	1,404	1,338	4.9%	0	0	--
East North Central	28,377	21,289	33.3%	1,180	1,062	11.2%	116	W	W
Illinois	4,385	5,209	-15.8%	NM	69	NM	0	0	--
Indiana	8,900	6,033	47.5%	164	97	68.8%	W	W	W
Michigan	4,998	4,438	12.6%	NM	291	NM	W	W	W
Ohio	6,698	2,797	139.4%	480	411	16.8%	W	0	W
Wisconsin	3,397	2,812	20.8%	NM	194	NM	W	W	W
West North Central	22,809	21,125	8.0%	844	895	-5.6%	0	0	--
Iowa	4,660	3,798	22.7%	NM	130	NM	0	0	--
Kansas	3,227	3,465	-6.9%	110	119	-7.1%	0	0	--
Minnesota	3,743	2,748	36.2%	NM	103	NM	0	0	--
Missouri	7,070	7,177	-1.5%	326	366	-10.8%	0	0	--
Nebraska	2,597	2,218	17.1%	NM	105	NM	0	0	--
North Dakota	W	W	W	NM	27	NM	0	0	--
South Dakota	W	W	W	NM	46	NM	0	0	--
South Atlantic	23,190	16,726	38.6%	10,401	11,044	-5.8%	W	W	W
Delaware	W	W	W	524	550	-4.6%	0	0	--
District of Columbia	0	0	--	0	0	--	0	0	--
Florida	2,742	3,026	-9.4%	3,853	4,249	-9.3%	W	W	W
Georgia	5,045	3,194	58.0%	805	821	-2.0%	0	0	--
Maryland	1,723	1,536	12.2%	723	757	-4.5%	0	0	--
North Carolina	3,776	2,961	27.5%	1,214	1,234	-1.6%	0	0	--
South Carolina	2,398	1,850	29.6%	671	721	-6.9%	0	0	--
Virginia	W	582	W	2,456	2,573	-4.5%	0	0	--
West Virginia	6,263	W	W	154	139	10.8%	W	W	W
East South Central	12,845	9,721	32.1%	1,196	1,146	4.4%	0	0	--
Alabama	W	W	W	210	206	1.9%	0	0	--
Kentucky	6,582	4,881	34.9%	221	231	-4.5%	0	0	--
Mississippi	W	W	W	NM	33	NM	0	0	--
Tennessee	2,868	2,417	18.7%	756	675	11.9%	0	0	--
West South Central	18,248	13,146	38.8%	1,243	1,324	-6.1%	W	W	W
Arkansas	3,611	2,297	57.2%	163	168	-2.7%	0	0	--
Louisiana	2,588	1,867	38.6%	222	223	-0.4%	W	W	W
Oklahoma	2,578	2,988	-13.7%	93	95	-2.8%	0	0	--
Texas	9,471	5,994	58.0%	765	837	-8.6%	0	0	--
Mountain	16,447	15,671	5.0%	334	385	-13.3%	W	W	W
Arizona	3,325	2,525	31.7%	126	136	-7.6%	0	0	--
Colorado	3,581	3,964	-9.7%	118	127	-6.6%	0	0	--
Idaho	0	0	--	0	0	-36.8%	0	0	--
Montana	W	W	W	NM	36	NM	W	W	W
Nevada	W	W	W	2	2	21.6%	0	0	--
New Mexico	W	W	W	NM	28	NM	0	0	--
Utah	2,866	3,252	-11.9%	26	26	1.2%	0	0	--
Wyoming	4,644	3,783	22.8%	29	30	-4.1%	0	0	--
Pacific Contiguous	W	W	W	358	352	1.6%	0	0	--
California	0	0	--	177	176	0.8%	0	0	--
Oregon	W	W	W	80	80	0.2%	0	0	--
Washington	W	W	W	NM	96	NM	0	0	--
Pacific Noncontiguous	W	W	W	1,323	1,168	13.3%	0	0	--
Alaska	W	W	W	NM	245	NM	0	0	--
Hawaii	W	W	W	1,103	923	19.6%	0	0	--
U.S. Total	128,180	102,793	24.7%	25,960	25,977	-0.1%	471	539	-12.6%

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

NM = Not meaningful due to large relative standard error or excessive percentage change.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Negative generation denotes that electric power consumed for plant use exceeds gross generation.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report.

**Table 6.3 Stocks of Coal, Petroleum Liquids, and Petroleum Coke:
Electric Power Sector, by Census Divison, 2019 and 2018**

Census Division	Electric Power Sector			Electric Utilities		Independent Power Producers	
	December 2019	December 2018	Percentage Change	December 2019	December 2018	December 2019	December 2018
Coal (Thousand Tons)							
New England	465	605	-23.2%	W	W	W	W
Middle Atlantic	4,612	3,511	31.4%	0	0	4,612	3,511
East North Central	28,377	21,289	33.3%	18,492	W	9,885	W
West North Central	22,809	21,125	8.0%	22,809	21,125	0	0
South Atlantic	23,190	16,726	38.6%	20,624	14,437	2,567	2,289
East South Central	12,845	9,721	32.1%	12,845	9,721	0	0
West South Central	18,248	13,146	38.8%	13,016	9,738	5,232	3,407
Mountain	16,447	15,671	5.0%	W	W	W	W
Pacific Contiguous	W	W	W	W	W	W	W
Pacific Noncontiguous	W	W	W	W	W	W	W
U.S. Total	128,180	102,793	24.7%	104,274	84,728	23,906	18,065
Petroleum Liquids (Thousand Barrels)							
New England	3,409	3,385	0.7%	497	520	2,911	2,865
Middle Atlantic	5,671	5,217	8.7%	2,138	1,833	3,534	3,384
East North Central	1,180	1,062	11.2%	717	709	463	353
West North Central	844	895	-5.6%	819	868	NM	27
South Atlantic	10,401	11,044	-5.8%	8,271	8,803	2,130	2,241
East South Central	1,196	1,146	4.4%	1,104	1,061	92	85
West South Central	1,243	1,324	-6.1%	1,025	1,026	218	297
Mountain	334	385	-13.3%	306	338	28	47
Pacific Contiguous	358	352	1.6%	278	273	79	80
Pacific Noncontiguous	1,323	1,168	13.3%	1,280	1,123	43	44
U.S. Total	25,960	25,977	-0.1%	16,435	16,553	9,525	9,423
Petroleum Coke (Thousand Tons)							
New England	0	0	--	0	0	0	0
Middle Atlantic	0	0	--	0	0	0	0
East North Central	116	W	W	W	W	W	0
West North Central	0	0	--	0	0	0	0
South Atlantic	W	W	W	W	W	W	W
East South Central	0	0	--	0	0	0	0
West South Central	W	W	W	W	W	0	0
Mountain	W	W	W	0	0	W	W
Pacific Contiguous	0	0	--	0	0	0	0
Pacific Noncontiguous	0	0	--	0	0	0	0
U.S. Total	471	539	-12.6%	428	521	43	19

W = Withheld to avoid disclosure of individual company data.

Notes: See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form-923.

Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form-923, 'Power Plant Operations Report.'

**Table 6.4. Stocks of Coal by Coal Rank: Electric Power Sector, 2009 - 2019
(Thousand Tons)**

Period	Electric Power Sector			Total
	Bituminous Coal	Subbituminous Coal	Lignite Coal	
End of Year Stocks				
2009	91,922	92,448	5,097	189,467
2010	81,108	86,915	6,894	174,917
2011	82,056	85,151	5,179	172,387
2012	86,437	93,833	4,846	185,116
2013	73,113	69,720	5,051	147,884
2014	72,771	72,552	6,225	151,548
2015	82,004	108,614	4,931	195,548
2016	67,241	90,376	4,393	162,009
2017	56,140	77,875	3,672	137,687
2018	41,507	58,247	3,039	102,793
2019	54,844	69,932	3,124	128,180
Year 2017, End of Month Stocks				
January	65,797	86,082	4,335	156,214
February	67,752	88,326	4,424	160,502
March	67,783	89,381	4,651	161,815
April	68,195	90,736	5,005	163,937
May	68,333	89,005	5,204	162,542
June	66,591	86,722	4,701	158,014
July	60,766	80,765	4,281	145,811
August	59,208	77,758	4,238	141,204
September	58,453	77,173	3,945	139,571
October	59,122	78,821	3,519	141,463
November	59,427	79,916	4,081	143,424
December	56,140	77,875	3,672	137,687
Year 2018, End of Month Stocks				
January	47,910	72,251	3,074	123,235
February	47,658	69,960	2,909	120,526
March	49,027	73,768	3,213	126,008
April	50,499	74,747	3,324	128,571
May	51,393	73,377	3,212	127,982
June	48,411	69,439	3,191	121,041
July	44,487	63,014	2,847	110,348
August	42,359	58,570	2,816	103,744
September	40,384	57,155	2,845	100,384
October	42,588	59,252	3,016	104,855
November	42,392	58,575	3,108	104,075
December	41,507	58,247	3,039	102,793
Year 2019, End of Month Stocks				
January	39,895	56,368	2,883	99,147
February	41,236	54,665	2,738	98,639
March	44,239	49,467	3,054	96,933
April	48,925	55,808	3,344	108,089
May	51,973	60,325	3,023	115,712
June	53,694	60,293	2,551	116,876
July	50,058	57,591	2,670	110,672
August	49,612	57,932	2,409	110,278
September	48,837	59,055	2,395	110,626
October	51,574	64,043	2,590	118,574
November	52,623	66,443	2,959	122,364
December	54,844	69,932	3,124	128,180

Notes: See Glossary for definitions.

Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

and predecessor forms. Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Form EIA-906, Power Plant Report; U.S. Energy Information Administration, Form EIA-920 Combined Heat and Power Plant Report, and predecessor forms. Beginning with 2008 data, the Form EIA-923, Power Plant Operations Report, replaced the following:

Form EIA-906, Power Plant Report; Form EIA-920, Combined Heat and Power Plant Report; Form EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report;

and Federal Energy Regulatory Commission, FERC Form 423, Monthly Report of Cost and Quality of Fuels for Electric Plants.

Chapter 7

Receipts, Cost, and Quality of Fossil Fuels

Table 7.1. Receipts, Average Cost, and Quality of Fossil Fuels for the Electric Power Industry, 2009 through 2019

Period	Coal				Petroleum				Natural Gas		All Fossil Fuels
	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Cost		Receipts (Thousand Barrels)	Average Sulfur Percent by Weight	Average Cost		Receipts (Thousand Mcf)	Average Cost (Dollars per MMBtu)	Average Cost (Dollars per MMBtu)
			(Dollars per MMBtu)	(Dollars per Ton)			(Dollars per MMBtu)	(Dollars per Barrel)			
2009	981,477	1.01	2.21	43.74	88,951	2.14	7.02	41.64	8,118,550	4.74	3.04
2010	979,918	1.16	2.27	44.64	75,285	2.14	9.54	56.35	8,673,070	5.09	3.26
2011	956,538	1.19	2.39	46.65	66,058	2.49	12.48	73.29	9,056,164	4.72	3.29
2012	841,183	1.25	2.38	46.09	40,364	3.61	12.48	73.30	9,531,389	3.42	2.83
2013	823,222	1.29	2.34	45.33	43,714	3.54	11.57	68.09	8,503,424	4.33	3.09
2014	854,560	1.32	2.37	45.96	54,488	3.56	11.60	68.12	8,431,423	5.00	3.31
2015	782,929	1.29	2.22	42.86	48,804	3.38	6.74	39.51	9,842,581	3.23	2.65
2016	650,770	1.34	2.11	40.64	37,637	3.69	5.24	30.46	10,271,180	2.87	2.47
2017	642,364	1.28	2.06	39.27	32,672	3.59	7.10	41.23	9,628,733	3.37	2.65
2018	596,215	1.31	2.06	39.25	37,341	3.31	9.68	56.82	10,885,764	3.55	2.83
2019	560,153	1.31	2.02	38.70	24,556	3.03	9.07	53.55	11,693,486	2.89	2.50

* = Value is less than half of the smallest unit of measure. (e.g., for values with no decimals, the smallest unit is 1 then values under 0.5 are shown as *.)

NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

COAL - includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas. Prior to 2011, synthesis gas was included in the category of Other Gases.

PETROLEUM - includes petroleum liquids (distillate fuel oil and residual fuel oil) and petroleum coke which includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases. Prior to 2013, petroleum liquids included distillate fuel oil, residual fuel oil, kerosene, jet fuel, waste oil, and, beginning in 2011, propane. Prior to 2011, propane was included in the category of Other Gases.

NATURAL GAS - includes natural gas only. Prior to 2011, includes Other Gases.

- All values are final.

- See Glossary for definitions.

- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.

- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

- See the Technical Notes for fuel conversion factors.

- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.2. Receipts and Quality of Coal Delivered for the Electric Power Industry, 2009 through 2019

Period	Bituminous			Subbituminous			Lignite		
	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight
2009	418,688	1.77	10.5	484,007	0.34	5.8	64,966	0.95	14.0
2010	403,619	1.90	10.4	491,425	0.33	5.8	71,416	0.90	14.1
2011	380,184	2.01	10.5	488,366	0.33	5.8	75,675	0.90	14.4
2012	317,398	2.23	10.6	442,674	0.32	5.8	71,848	0.93	14.6
2013	312,821	2.33	10.5	429,283	0.32	5.8	71,191	0.92	14.3
2014	334,082	2.34	10.3	440,013	0.31	5.8	71,534	0.90	14.1
2015	289,093	2.40	10.4	421,127	0.32	5.8	65,826	0.89	14.1
2016	245,141	2.43	10.3	333,241	0.31	5.8	64,426	0.91	14.0
2017	224,500	2.45	10.3	350,580	0.31	5.6	59,665	0.96	14.0
2018	205,783	2.55	10.1	329,974	0.31	5.7	52,438	0.91	13.4
2019	198,016	2.52	10.0	309,029	0.32	5.7	46,781	0.90	13.3

* = Value is less than half of the smallest unit of measure. (e.g., for values with no decimals, the smallest unit is 1 then values under 0.5 are shown as *.)
 NM = Not meaningful due to large relative standard error or excessive percentage change.
 W = Withheld to avoid disclosure of individual company data.

Notes:

Bituminous coal includes anthracite and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases.

- All values are final.
- See Glossary for definitions.
- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.
- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.
- See the Technical Notes for fuel conversion factors.
- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.3. Average Quality of Fossil Fuel Receipts for the Electric Power Industry, 2009 through 2019

Period	Coal			Petroleum			Natural Gas
	Average Btu per Pound	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Average Btu per Gallon	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Average Btu per Cubic Foot
2009	9,902	1.01	8.9	141,321	2.14	0.2	1,025
2010	9,842	1.16	8.8	140,598	2.14	0.2	1,022
2011	9,762	1.19	8.8	139,795	2.49	0.4	1,021
2012	9,668	1.25	8.8	139,567	3.61	0.5	1,023
2013	9,661	1.29	8.7	139,671	3.54	0.5	1,026
2014	9,710	1.32	8.6	139,713	3.56	0.5	1,029
2015	9,634	1.29	8.6	139,681	3.38	0.5	1,034
2016	9,617	1.34	8.7	138,384	3.69	0.5	1,034
2017	9,544	1.28	8.4	138,324	3.59	0.4	1,034
2018	9,536	1.31	8.3	139,762	3.31	0.3	1,033
2019	9,592	1.31	8.3	140,549	3.03	0.3	1,034

* = Value is less than half of the smallest unit of measure. (e.g., for values with no decimals, the smallest unit is 1 then values under 0.5 are shown as *.)

NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

COAL - includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas. Prior to 2011, synthesis gas was included in the category of Other Gases.

PETROLEUM - includes petroleum liquids (distillate fuel oil and residual fuel oil) and petroleum coke which includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases. Prior to 2013, petroleum liquids included distillate fuel oil, residual fuel oil, kerosene, jet fuel, waste oil, and, beginning in 2011, propane. Prior to 2011, propane was included in the category of Other Gases.

NATURAL GAS - includes natural gas only. Prior to 2011, includes Other Gases.

- All values are final.
- See Glossary for definitions.
- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.
- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.
- See the Technical Notes for fuel conversion factors.
- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.4. Weighted Average Cost of Fossil Fuels for the Electric Power Industry, 2009 through 2019

Period	Coal								Petroleum		Natural Gas		Total Fossil	
	Bituminous		Subbituminous		Lignite		All Coal Ranks		Receipts (Trillion Btu)	Average Cost (Dollars per MMBtu)	Receipts (Trillion Btu)	Average Cost (Dollars per MMBtu)	Receipts (Trillion Btu)	Average Cost (Dollars per MMBtu)
	Receipts (Trillion Btu)	Average Cost (Dollars per MMBtu)	Receipts (Trillion Btu)	Average Cost (Dollars per MMBtu)	Receipts (Trillion Btu)	Average Cost (Dollars per MMBtu)	Receipts (Trillion Btu)	Average Cost (Dollars per MMBtu)						
2009	10,010	2.75	8,421	1.64	835	1.58	19,438	2.21	528	7.02	8,319	4.74	28,285	3.04
2010	9,652	2.81	8,545	1.73	925	1.62	19,290	2.27	445	9.54	8,867	5.09	28,602	3.26
2011	9,040	2.94	8,498	1.91	986	1.62	18,676	2.39	388	12.48	9,251	4.72	28,314	3.29
2012	7,502	2.89	7,722	1.97	931	1.80	16,266	2.38	237	12.48	9,747	3.42	26,249	2.83
2013	7,351	2.77	7,511	2.00	927	1.78	15,907	2.34	256	11.57	8,721	4.33	24,884	3.09
2014	7,883	2.74	7,681	2.06	934	1.77	16,595	2.37	320	11.60	8,679	5.00	25,594	3.31
2015	6,797	2.58	7,353	1.94	855	1.92	15,086	2.22	286	6.74	10,174	3.23	25,546	2.65
2016	5,770	2.40	5,818	1.89	840	1.74	12,516	2.11	219	5.24	10,619	2.87	23,354	2.47
2017	5,279	2.31	6,123	1.90	773	1.66	12,261	2.06	190	7.10	9,952	3.37	22,403	2.65
2018	4,838	2.31	5,765	1.90	677	1.71	11,371	2.06	219	9.68	11,244	3.55	22,834	2.83
2019	4,670	2.26	5,401	1.86	601	1.68	10,746	2.02	145	9.07	12,093	2.89	22,984	2.50

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NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

COAL - All coal ranks subtotal includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas. Prior to 2011, synthesis gas was included in the category of Other Gases.

Bituminous coal includes anthracite coal and beginning in 2011, coal-derived synthesis gas.

PETROLEUM - includes petroleum liquids (distillate fuel oil and residual fuel oil) and petroleum coke which includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases. Prior to 2013, petroleum liquids included distillate fuel oil, residual fuel oil, kerosene, jet fuel, waste oil, and, beginning in 2011, propane. Prior to 2011, propane was included in the category of Other Gases.

NATURAL GAS - includes natural gas only. Prior to 2011, includes Other Gases.

- All values are final.
- See Glossary for definitions.
- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.
- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.
- See the Technical Notes for fuel conversion factors.
- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.5. Receipts, Average Cost, and Quality of Fossil Fuels: Electric Utilities, 2009 - 2019

Period	Coal						Petroleum Liquids					
	Receipts		Average Cost		Average Sulfur Percent by Weight	Percentage of Consumption	Receipts		Average Cost		Average Sulfur Percent by Weight	Percentage of Consumption
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)			(Billion Btu)	(Thousand Barrels)	(Dollars per MMBtu)	(Dollars per Barrel)		
Annual Totals												
2009	14,402,019	719,253	2.22	44.47	0.99	103.4	202,598	32,959	10.44	64.18	0.51	103.5
2010	14,226,995	713,094	2.27	45.33	1.14	98.8	189,790	31,099	13.94	85.07	0.48	101.0
2011	13,871,559	699,353	2.40	47.67	1.16	101.5	144,255	23,859	20.30	122.72	0.53	114.5
2012	11,939,543	609,445	2.43	47.51	1.18	99.0	86,030	14,252	22.11	133.44	0.41	81.3
2013	11,595,328	592,772	2.38	46.51	1.23	92.9	78,101	12,814	21.09	128.57	0.43	76.2
2014	12,064,810	614,728	2.39	46.95	1.21	98.3	98,357	16,161	19.90	121.14	0.44	82.0
2015	11,088,631	571,707	2.25	43.71	1.17	105.8	90,041	14,747	11.32	69.13	0.46	79.2
2016	9,256,878	476,207	2.16	42.01	1.21	95.4	73,294	11,985	9.16	56.02	0.45	74.0
2017	9,011,629	467,595	2.12	40.81	1.16	96.0	70,422	11,640	11.60	70.19	0.47	74.4
2018	8,351,036	435,964	2.11	40.35	1.18	91.6	84,050	13,896	14.39	87.09	0.37	75.3
2019	7,970,069	413,915	2.08	39.99	1.18	103.1	66,789	11,010	13.40	81.29	0.46	69.9
Year 2017												
January	797,433	41,477	2.14	41.15	1.14	88.2	6,680	1,100	11.15	67.71	0.44	77.4
February	737,614	38,372	2.11	40.53	1.20	107.5	4,658	770	11.60	70.11	0.46	67.3
March	706,986	36,570	2.12	41.05	1.20	101.9	10,582	1,778	11.59	68.99	0.53	132.1
April	650,562	33,339	2.14	41.82	1.22	105.4	4,760	788	11.41	68.97	0.46	67.0
May	702,581	36,058	2.16	42.07	1.21	95.9	4,694	778	11.40	68.79	0.45	60.4
June	786,845	40,393	2.13	41.51	1.20	91.9	5,771	951	10.93	66.29	0.47	73.1
July	821,488	42,591	2.11	40.78	1.11	81.6	4,826	803	10.96	65.87	0.45	67.9
August	890,849	46,092	2.11	40.79	1.18	93.7	5,210	855	11.12	67.72	0.46	67.7
September	741,814	38,857	2.08	39.69	1.10	98.1	4,823	792	11.80	71.87	0.48	65.5
October	733,109	38,175	2.09	40.12	1.15	104.8	5,030	825	12.05	73.47	0.49	62.1
November	726,042	38,128	2.11	40.23	1.13	105.8	7,044	1,156	12.00	73.12	0.41	97.4
December	716,306	37,543	2.11	40.20	1.11	89.5	6,345	1,043	12.93	78.67	0.42	58.3
Year 2018												
January	689,121	36,230	2.08	39.57	1.11	75.5	16,449	2,762	14.38	85.73	0.43	61.0
February	637,294	33,294	2.10	40.18	1.17	97.3	8,657	1,413	12.58	77.10	0.46	126.0
March	696,264	36,224	2.09	40.20	1.18	111.4	5,472	906	13.38	80.86	0.36	82.4
April	600,033	31,096	2.12	40.93	1.23	101.8	5,321	875	13.78	83.81	0.36	74.7
May	654,477	33,757	2.09	40.57	1.24	95.3	6,739	1,108	14.37	87.44	0.29	82.5
June	689,040	35,857	2.10	40.33	1.21	84.0	6,566	1,085	14.63	88.49	0.28	78.5
July	738,864	38,675	2.10	40.13	1.15	79.8	5,620	920	14.34	87.60	0.27	75.5
August	802,045	41,889	2.11	40.43	1.19	87.2	5,016	826	15.26	92.68	0.34	63.6
September	695,648	36,530	2.12	40.31	1.15	90.3	5,665	940	15.53	93.63	0.35	66.8
October	713,410	37,228	2.10	40.20	1.21	104.3	6,170	1,011	15.78	96.34	0.39	73.6
November	691,145	36,346	2.10	39.90	1.17	95.3	5,383	896	15.89	95.50	0.41	69.8
December	743,694	38,838	2.17	41.48	1.17	93.2	6,991	1,155	13.83	83.69	0.44	94.7
Year 2019												
January	738,951	38,447	2.16	41.50	1.17	92.6	6,257	1,035	12.58	76.07	0.42	61.2
February	631,870	33,072	2.14	40.80	1.15	98.6	6,768	1,106	13.06	79.89	0.46	99.9
March	588,088	30,001	2.14	41.91	1.36	94.2	6,258	1,034	14.36	86.91	0.42	88.8
April	646,989	33,355	2.13	41.31	1.20	135.4	5,460	901	14.73	89.26	0.47	85.9
May	664,887	34,246	2.12	41.12	1.21	112.6	5,038	832	14.15	85.71	0.48	63.5
June	651,381	33,621	2.10	40.75	1.19	99.7	5,247	869	13.31	80.39	0.47	63.3
July	723,359	37,713	2.08	39.90	1.15	88.8	4,455	740	13.30	80.10	0.46	55.6
August	746,495	38,909	2.06	39.56	1.14	97.4	3,921	656	13.65	81.53	0.48	44.4
September	676,927	35,149	2.01	38.79	1.17	98.7	6,831	1,119	12.41	75.70	0.45	85.5
October	643,227	33,488	2.01	38.57	1.13	122.6	4,958	815	13.28	80.79	0.47	62.2
November	624,023	32,728	2.01	38.36	1.14	106.9	6,206	1,013	12.83	78.61	0.48	82.2
December	633,871	33,185	1.95	37.30	1.12	110.8	5,390	891	13.65	82.59	0.47	63.9

Displayed values of zero may represent small values that round to zero.

NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

COAL - includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas. Prior to 2011, synthesis gas was included in the category of Other Gases.

PETROLEUM LIQUIDS - includes distillate fuel oil and residual fuel oil. Prior to 2013, petroleum liquids included distillate fuel oil, residual fuel oil, kerosene, jet fuel, waste oil, and, beginning in 2011, propane. Prior to 2011, propane was included in the category of Other Gases.

- Values are final.

- See Glossary for definitions.

- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.

- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

- See the Technical Notes for fuel conversion factors.

- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.6. Receipts, Average Cost, and Quality of Fossil Fuels: Electric Utilities, 2009 - 2019 (continued)

Period	Petroleum Coke						Natural Gas					All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)	Average Sulfur Percent by Weight	Percentage of Consumption	(Billion Btu)	(Thousand Mcf)	(Dollars per MMBtu)	(Dollars per Mcf)	Percentage of Consumption	(Dollars per MMBtu)
Annual Totals												
2009	109,126	3,833	1.68	47.84	5.02	138.8	3,033,133	2,962,640	5.50	5.63	101.8	2.87
2010	103,152	3,628	2.38	67.65	5.03	109.1	3,395,962	3,327,919	5.43	5.54	101.1	2.99
2011	99,208	3,445	3.08	88.73	5.17	99.9	3,571,348	3,507,613	5.00	5.09	101.8	3.08
2012	72,782	2,521	2.30	66.40	5.46	119.8	4,083,579	4,003,457	3.74	3.81	97.6	2.86
2013	99,088	3,463	2.11	60.30	5.34	101.6	3,939,408	3,851,241	4.49	4.59	97.0	2.99
2014	123,793	4,349	1.89	53.77	5.56	126.3	3,876,549	3,772,596	5.17	5.31	96.7	3.16
2015	115,929	4,069	1.77	50.44	5.23	130.1	4,717,748	4,565,040	3.52	3.64	96.0	2.67
2016	99,706	3,538	1.52	42.85	5.38	103.1	5,075,337	4,907,538	3.15	3.26	97.0	2.54
2017	90,481	3,224	2.15	60.31	5.55	117.6	4,794,383	4,640,827	3.62	3.74	96.8	2.68
2018	83,211	2,940	2.56	72.34	5.74	106.8	5,553,558	5,379,459	3.68	3.80	96.2	2.80
2019	54,266	1,896	1.92	54.88	5.50	91.0	6,026,974	5,831,134	3.03	3.13	97.0	2.53
Year 2017												
January	7,058	251	2.14	60.16	5.67	83.3	337,934	326,650	4.31	4.46	95.7	2.82
February	7,593	271	2.00	56.03	5.85	124.3	294,739	285,524	3.80	3.92	96.7	2.62
March	8,628	309	2.06	57.51	5.29	143.9	355,327	344,045	3.53	3.64	97.0	2.67
April	5,835	208	2.00	55.96	5.34	188.7	337,897	327,119	3.52	3.63	97.7	2.65
May	6,776	242	2.05	57.46	5.57	91.5	383,048	371,448	3.68	3.80	98.5	2.73
June	8,386	298	2.14	60.07	5.55	105.5	441,947	428,006	3.55	3.66	97.6	2.67
July	8,245	292	2.11	59.61	5.49	107.5	554,753	536,355	3.45	3.57	96.5	2.68
August	7,676	273	2.11	59.17	5.45	119.8	519,869	502,857	3.42	3.53	96.7	2.62
September	7,658	274	2.12	59.07	5.42	130.2	434,880	420,328	3.54	3.66	96.4	2.65
October	7,454	265	2.37	66.84	5.58	154.2	389,164	376,992	3.55	3.66	97.1	2.63
November	7,084	252	2.52	70.93	5.66	107.1	342,125	331,573	3.64	3.76	96.6	2.66
December	8,088	287	2.17	60.99	5.74	123.5	402,703	389,931	3.71	3.83	95.6	2.74
Year 2018												
January	7,009	248	2.38	67.41	5.31	83.4	423,606	410,310	5.20	5.37	95.5	3.41
February	7,769	277	2.43	68.09	5.49	117.9	359,760	348,729	3.81	3.93	95.0	2.79
March	7,841	281	2.54	70.89	5.54	141.5	397,572	384,900	3.46	3.57	96.4	2.64
April	6,564	232	2.56	72.38	6.09	119.0	377,302	365,948	3.30	3.40	97.5	2.63
May	4,344	152	2.41	68.58	6.09	108.3	452,870	438,567	3.24	3.35	94.8	2.63
June	7,382	260	2.73	77.61	5.97	96.2	525,751	509,192	3.28	3.39	97.2	2.67
July	8,147	287	2.73	77.48	5.73	100.4	632,132	612,044	3.27	3.38	95.1	2.69
August	8,183	288	2.82	80.03	5.67	105.4	607,246	588,293	3.33	3.44	96.5	2.68
September	7,493	263	3.05	86.74	5.59	101.2	535,618	518,216	3.28	3.39	97.0	2.68
October	5,415	191	2.55	72.24	5.80	120.4	464,777	450,302	3.57	3.68	97.8	2.74
November	6,524	229	2.23	63.55	5.88	116.4	390,167	378,446	4.26	4.39	94.9	2.93
December	6,541	232	2.04	57.52	5.91	96.0	386,756	374,513	4.92	5.08	96.2	3.16
Year 2019												
January	5,447	192	2.08	59.13	5.93	73.8	446,581	432,740	4.13	4.26	97.1	2.94
February	4,486	155	2.27	65.75	5.78	69.4	414,367	398,782	3.76	3.90	96.0	2.84
March	3,725	130	2.43	69.63	6.15	66.9	432,758	419,315	3.63	3.74	96.4	2.84
April	3,159	111	2.71	76.93	5.65	101.5	401,329	388,531	3.05	3.15	96.7	2.55
May	4,631	162	2.24	63.78	5.41	73.8	471,417	457,391	2.92	3.01	99.1	2.50
June	3,740	130	2.18	62.61	5.15	85.7	546,353	529,347	2.73	2.82	97.6	2.43
July	5,723	199	2.01	57.76	5.22	86.8	662,600	640,466	2.63	2.72	96.9	2.38
August	6,693	235	1.72	48.82	5.15	115.7	680,091	657,152	2.52	2.61	96.6	2.31
September	3,034	105	1.68	48.71	5.58	56.6	577,988	559,208	2.75	2.84	97.0	2.40
October	1,738	60	1.51	43.76	5.45	92.3	496,610	480,428	2.69	2.78	96.7	2.35
November	6,654	232	1.46	41.78	5.38	227.7	427,761	413,977	3.13	3.24	97.1	2.52
December	5,236	183	1.14	32.50	5.44	132.2	469,120	453,798	3.12	3.22	96.9	2.50

Displayed values of zero may represent small values that round to zero.

NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

PETROLEUM COKE - includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

NATURAL GAS - includes natural gas only. Prior to 2011, includes Other Gases.

- Values are final.

- See Glossary for definitions.

- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.

- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

- See the Technical Notes for fuel conversion factors.

- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.7 Receipts, Average Cost, and Quality of Fossil Fuels: Independent Power Producers, 2009 - 2019

Period	Coal						Petroleum Liquids					
	Receipts		Average Cost				Receipts		Average Cost			
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)	Average Sulfur Percent by Weight	Percentage of Consumption	(Billion Btu)	(Thousand Barrels)	(Dollars per MMBtu)	(Dollars per Barrel)	Average Sulfur Percent by Weight	Percentage of Consumption
Annual Totals												
2009	4,563,080	240,687	2.11	39.94	1.06	101.1	68,030	11,408	10.02	59.76	0.37	102.0
2010	4,555,898	243,585	2.20	41.15	1.21	96.0	49,598	8,420	14.80	87.19	0.35	89.9
2011	4,292,284	233,295	2.28	41.95	1.25	95.9	41,599	7,096	20.30	119.01	0.50	106.9
2012	4,036,436	218,341	2.21	40.92	1.42	104.9	23,922	4,073	22.34	131.28	0.44	79.8
2013	4,032,431	217,572	2.20	40.95	1.48	99.1	43,432	7,205	19.71	118.88	0.45	110.1
2014	4,243,949	226,600	2.25	42.20	1.61	100.1	71,774	11,980	19.90	119.36	0.45	101.0
2015	3,731,508	198,982	2.10	39.39	1.66	100.5	55,248	9,189	11.69	70.36	0.46	86.5
2016	3,047,358	164,648	1.93	35.69	1.73	91.8	25,975	4,410	9.93	58.56	0.48	75.1
2017	3,056,215	165,567	1.85	34.19	1.64	93.1	24,704	4,190	12.67	74.73	0.46	73.8
2018	2,849,062	152,015	1.89	35.41	1.70	94.2	47,699	8,022	14.52	86.39	0.44	81.7
2019	2,629,405	139,141	1.81	34.16	1.74	101.6	20,188	3,425	14.40	84.89	0.50	73.0
Year 2017												
January	297,849	16,042	1.92	35.75	1.59	96.7	2,862	488	13.96	82.04	0.47	105.5
February	254,381	13,690	1.88	34.92	1.59	110.9	1,514	254	11.89	70.84	0.50	69.9
March	251,712	13,439	1.88	35.27	1.75	103.1	1,436	247	11.97	69.71	0.44	85.2
April	235,324	12,633	1.85	34.48	1.66	99.2	1,436	242	12.28	72.85	0.44	81.4
May	238,355	12,976	1.86	34.11	1.67	97.1	1,790	306	11.55	67.69	0.45	78.7
June	239,687	13,070	1.86	34.15	1.67	87.3	1,559	267	10.88	63.53	0.42	65.0
July	257,789	14,218	1.85	33.64	1.55	80.5	1,775	303	10.73	62.88	0.48	79.1
August	279,845	15,249	1.83	33.52	1.64	91.5	1,702	289	11.16	65.68	0.43	72.0
September	258,366	13,963	1.82	33.65	1.63	92.0	1,543	267	11.35	65.70	0.42	67.7
October	250,339	13,545	1.83	33.87	1.60	99.0	2,399	406	11.71	69.17	0.50	118.1
November	243,578	13,224	1.79	33.00	1.64	88.3	2,544	434	13.15	77.15	0.56	110.2
December	248,991	13,519	1.83	33.70	1.68	81.5	4,145	688	15.82	95.35	0.43	44.3
Year 2018												
January	250,209	13,549	1.99	36.82	1.60	79.9	19,101	3,180	13.71	82.73	0.46	63.7
February	200,760	10,859	1.93	35.69	1.58	93.0	3,249	550	13.53	79.99	0.43	195.1
March	229,355	11,974	1.84	35.33	1.83	99.4	2,273	388	14.17	82.79	0.43	107.3
April	202,887	10,815	1.88	35.20	1.61	107.5	1,427	242	14.45	84.93	0.44	61.3
May	223,521	11,725	1.87	35.68	1.78	98.4	2,731	459	14.46	86.28	0.46	95.4
June	227,121	12,009	1.84	34.83	1.84	89.2	2,614	444	15.89	93.43	0.40	92.9
July	235,760	12,666	1.87	34.83	1.73	82.1	1,775	301	16.08	94.43	0.45	64.8
August	260,087	13,942	1.86	34.73	1.68	88.4	1,864	315	15.92	93.84	0.42	59.8
September	235,579	12,761	1.82	33.63	1.56	94.5	2,082	351	15.17	89.90	0.39	82.5
October	274,139	14,529	1.89	35.60	1.72	113.8	3,039	517	15.83	92.93	0.41	127.4
November	248,768	13,265	1.92	35.95	1.73	97.0	3,328	566	15.95	93.64	0.42	119.9
December	260,878	13,920	1.94	36.42	1.68	99.1	4,215	709	14.20	84.15	0.46	132.8
Year 2019												
January	258,502	13,732	1.91	35.91	1.75	94.9	2,550	426	12.15	72.73	0.50	53.5
February	208,595	11,136	1.83	34.30	1.66	96.1	2,052	344	13.83	82.61	0.46	98.6
March	225,693	11,804	1.88	35.97	1.87	96.4	1,312	223	14.97	88.25	0.54	79.1
April	215,930	11,232	1.84	35.44	1.89	127.7	1,400	238	15.72	92.48	0.51	72.3
May	219,210	11,432	1.83	35.06	1.91	118.6	1,628	278	15.67	91.68	0.49	76.9
June	210,718	11,178	1.76	33.24	1.84	105.7	1,505	255	15.10	89.08	0.48	74.1
July	210,437	11,271	1.79	33.38	1.69	83.9	1,409	240	15.49	90.87	0.48	53.7
August	228,948	12,067	1.78	33.72	1.69	96.5	1,184	203	16.40	95.62	0.49	57.7
September	207,547	11,127	1.75	32.61	1.59	95.7	1,361	232	13.79	81.01	0.56	72.0
October	219,896	11,624	1.77	33.58	1.69	114.0	1,713	292	15.05	88.23	0.52	80.0
November	214,440	11,469	1.77	33.22	1.61	101.1	1,652	281	13.67	80.52	0.49	78.7
December	209,490	11,070	1.75	33.07	1.66	104.6	2,423	414	13.65	79.88	0.50	107.5

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 W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:
 COAL - includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas. Prior to 2011, synthesis gas was included in the category of Other Gases.
 PETROLEUM LIQUIDS - includes distillate fuel oil and residual fuel oil. Prior to 2013, petroleum liquids included distillate fuel oil, residual fuel oil, kerosene, jet fuel, waste oil, and, beginning in 2011, propane. Prior to 2011, propane was included in the category of Other Gases.

- Values are final.
- See Glossary for definitions.
- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.
- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.
- See the Technical Notes for fuel conversion factors.
- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.8. Receipts, Average Cost, and Quality of Fossil Fuels: Independent Power Producers, 2009 - 2019 (continued)

Period	Petroleum Coke						Natural Gas					All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)	Average Sulfur Percent by Weight	Percentage of Consumption	(Billion Btu)	(Thousand Mcf)	(Dollars per MMBtu)	(Dollars per Mcf)	Percentage of Consumption	(Dollars per MMBtu)
Annual Totals												
2009	49,619	1,732	1.31	37.63	3.87	93.6	4,087,573	3,987,721	4.30	4.41	100.7	3.18
2010	30,079	1,050	1.74	49.80	3.84	72.3	4,212,611	4,119,103	4.94	5.05	100.6	3.57
2011	33,643	1,175	2.54	72.85	4.55	84.6	4,252,040	4,158,617	4.62	4.72	100.8	3.52
2012	23,024	801	0.82	23.98	5.49	92.1	4,810,553	4,696,637	3.17	3.25	93.8	2.74
2013	16,150	575	W	W	5.39	65.6	4,025,263	3,917,898	4.25	4.36	92.8	W
2014	13,781	488	2.48	70.31	5.33	70.9	4,054,540	3,934,672	4.90	5.05	92.7	3.52
2015	14,550	524	2.45	68.22	5.26	67.3	4,683,291	4,530,195	2.94	3.04	93.2	2.57
2016	13,573	492	2.50	68.88	5.44	69.9	4,791,729	4,634,518	2.54	2.63	94.0	2.29
2017	0	0	--	--	--	0.0	4,346,156	4,201,573	3.08	3.19	94.0	2.54
2018	0	0	--	--	--	0.0	4,889,212	4,727,692	3.40	3.52	94.6	2.84
2019	0	0	--	--	--	0.0	5,242,547	5,062,877	2.70	2.80	96.0	2.40
Year 2017												
January	0	0	--	--	--	0.0	308,468	297,985	3.99	4.13	93.5	2.92
February	0	0	--	--	--	0.0	266,924	258,124	3.34	3.46	94.2	2.58
March	0	0	--	--	--	0.0	309,192	299,108	3.22	3.33	94.1	2.58
April	0	0	--	--	--	0.0	284,438	275,168	3.20	3.31	94.1	2.55
May	0	0	--	--	--	0.0	315,966	305,806	3.21	3.32	94.8	2.58
June	0	0	--	--	--	0.0	401,399	388,239	2.92	3.02	94.2	2.49
July	0	0	--	--	--	0.0	510,043	492,821	2.88	2.98	93.8	2.50
August	0	0	--	--	--	0.0	490,650	474,187	2.74	2.84	94.5	2.37
September	0	0	--	--	--	0.0	410,946	396,673	2.66	2.75	93.9	2.30
October	0	0	--	--	--	0.0	370,533	358,357	2.60	2.69	93.3	2.29
November	0	0	--	--	--	0.0	310,914	300,784	3.03	3.13	93.1	2.47
December	0	0	--	--	--	0.0	366,682	354,320	3.64	3.77	94.0	2.91
Year 2018												
January	0	0	--	--	--	0.0	343,077	331,644	5.21	5.39	93.1	3.99
February	0	0	--	--	--	0.0	312,835	302,657	3.38	3.49	93.7	2.80
March	0	0	--	--	--	0.0	346,290	334,497	2.87	2.97	93.6	2.46
April	0	0	--	--	--	0.0	319,774	309,352	2.96	3.06	94.1	2.51
May	0	0	--	--	--	0.0	377,388	365,397	2.79	2.89	94.8	2.46
June	0	0	--	--	--	0.0	422,237	408,330	2.89	2.98	95.3	2.53
July	0	0	--	--	--	0.0	570,783	552,360	3.21	3.32	95.3	2.79
August	0	0	--	--	--	0.0	565,773	547,533	3.22	3.33	95.1	2.76
September	0	0	--	--	--	0.0	489,149	472,958	2.90	3.00	95.4	2.54
October	0	0	--	--	--	0.0	419,722	405,657	3.20	3.31	94.9	2.68
November	0	0	--	--	--	0.0	355,192	343,013	4.12	4.27	94.1	3.19
December	0	0	--	--	--	0.0	366,993	354,294	4.49	4.65	95.0	3.39
Year 2019												
January	0	0	--	--	--	0.0	398,896	385,014	3.88	4.02	95.6	3.05
February	0	0	--	--	--	0.0	357,555	345,530	3.49	3.61	95.0	2.85
March	0	0	--	--	--	0.0	371,920	359,394	3.30	3.41	95.0	2.73
April	0	0	--	--	--	0.0	333,598	322,802	2.65	2.74	95.5	2.33
May	0	0	--	--	--	0.0	372,853	360,800	2.53	2.61	96.4	2.28
June	0	0	--	--	--	0.0	446,512	432,051	2.35	2.43	96.4	2.17
July	0	0	--	--	--	0.0	592,358	572,083	2.43	2.51	96.4	2.26
August	0	0	--	--	--	0.0	597,443	576,291	2.27	2.35	96.5	2.13
September	0	0	--	--	--	0.0	504,061	486,741	2.38	2.47	96.5	2.19
October	0	0	--	--	--	0.0	438,101	422,965	2.22	2.30	96.1	2.09
November	0	0	--	--	--	0.0	388,489	374,471	2.77	2.88	95.5	2.41
December	0	0	--	--	--	0.0	440,761	424,737	2.69	2.79	95.8	2.39

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W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

PETROLEUM COKE - includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

NATURAL GAS - includes natural gas only. Prior to 2011, includes Other Gases.

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- See Glossary for definitions.

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- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

- See the Technical Notes for fuel conversion factors.

- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.9. Receipts, Average Cost, and Quality of Fossil Fuels: Commercial Sector, 2009 - 2019

Period	Coal						Petroleum Liquids					
	Receipts		Average Cost		Average Sulfur Percent by Weight	Percentage of Consumption	Receipts		Average Cost		Average Sulfur Percent by Weight	Percentage of Consumption
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)			(Billion Btu)	(Thousand Barrels)	(Dollars per MMBtu)	(Dollars per Barrel)		
Annual Totals												
2009	41,182	1,876	2.90	63.68	1.67	104.3	3,517	583	10.82	65.26	0.45	122.1
2010	37,778	1,747	2.82	61.06	1.77	101.6	2,395	400	15.24	91.25	0.38	106.3
2011	35,892	1,686	2.92	62.24	1.78	101.1	1,959	325	19.67	118.66	0.55	108.0
2012	4,427	192	3.41	78.71	2.75	13.2	247	43	W	W	0.00	11.0
2013	3,507	151	W	W	3.05	11.2	0	0	--	--	--	0.0
2014	4,096	182	3.12	70.30	2.50	17.1	0	0	--	--	--	0.0
2015	2,439	109	2.85	63.90	2.55	13.6	0	0	--	--	--	0.0
2016	1,288	57	2.69	60.89	3.03	8.3	0	0	--	--	--	0.0
2017	548	24	2.78	63.31	2.99	3.9	0	0	--	--	--	0.0
2018	290	13	2.94	66.52	3.04	2.2	0	0	--	--	--	0.0
2019	193	8	2.92	66.55	3.01	1.6	0	0	--	--	--	0.0
Year 2017												
January	111	5	2.77	62.82	2.99	6.9	0	0	--	--	--	0.0
February	91	4	2.77	63.46	2.95	6.9	0	0	--	--	--	0.0
March	104	5	2.77	63.24	3.02	7.0	0	0	--	--	--	0.0
April	1	0	2.77	63.60	2.96	0.1	0	0	--	--	--	0.0
May	11	0	2.77	63.54	3.23	1.2	0	0	--	--	--	0.0
June	17	1	2.77	63.65	3.02	1.8	0	0	--	--	--	0.0
July	0	0	--	--	--	0.0	0	0	--	--	--	0.0
August	4	0	2.77	63.24	2.77	0.4	0	0	--	--	--	0.0
September	72	3	2.77	63.24	2.96	6.9	0	0	--	--	--	0.0
October	35	2	2.79	64.50	2.96	3.6	0	0	--	--	--	0.0
November	13	1	2.79	63.70	3.04	1.1	0	0	--	--	--	0.0
December	89	4	2.79	63.31	3.01	6.0	0	0	--	--	--	0.0
Year 2018												
January	95	4	2.92	66.58	3.11	5.5	0	0	--	--	--	0.0
February	31	1	2.92	66.05	3.19	2.3	0	0	--	--	--	0.0
March	5	0	2.92	66.20	3.16	0.4	0	0	--	--	--	0.0
April	0	0	--	--	--	0.0	0	0	--	--	--	0.0
May	0	0	--	--	--	0.0	0	0	--	--	--	0.0
June	0	0	--	--	--	0.0	0	0	--	--	--	0.0
July	0	0	--	--	--	0.0	0	0	--	--	--	0.0
August	0	0	--	--	--	0.0	0	0	--	--	--	0.0
September	0	0	--	--	--	0.0	0	0	--	--	--	0.0
October	52	2	2.94	66.53	2.87	5.5	0	0	--	--	--	0.0
November	62	3	2.94	66.44	2.99	5.8	0	0	--	--	--	0.0
December	46	2	2.97	66.83	3.05	4.4	0	0	--	--	--	0.0
Year 2019												
January	27	1	2.90	65.89	3.00	2.0	0	0	--	--	--	0.0
February	37	2	2.90	65.51	2.95	3.0	0	0	--	--	--	0.0
March	48	2	2.90	65.86	2.94	3.6	0	0	--	--	--	0.0
April	2	0	2.90	65.28	2.90	0.3	0	0	--	--	--	0.0
May	0	0	--	--	--	0.0	0	0	--	--	--	0.0
June	2	0	2.90	66.38	3.02	0.4	0	0	--	--	--	0.0
July	1	0	2.97	67.69	2.94	0.2	0	0	--	--	--	0.0
August	0	0	--	--	--	0.0	0	0	--	--	--	0.0
September	0	0	--	--	--	0.0	0	0	--	--	--	0.0
October	23	1	2.96	67.99	3.17	2.7	0	0	--	--	--	0.0
November	31	1	2.96	67.99	3.17	3.0	0	0	--	--	--	0.0
December	21	1	2.96	67.34	2.91	1.9	0	0	--	--	--	0.0

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NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

COAL - includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas. Prior to 2011, synthesis gas was included in the category of Other Gases.

PETROLEUM LIQUIDS - includes distillate fuel oil and residual fuel oil. Prior to 2013, petroleum liquids included distillate fuel oil, residual fuel oil, kerosene, jet fuel, waste oil, and, beginning in 2011, propane. Prior to 2011, propane was included in the category of Other Gases.

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- See the Technical Notes for fuel conversion factors.

- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.10. Receipts, Average Cost, and Quality of Fossil Fuels: Commercial Sector, 2009 - 2019 (continued)

Period	Petroleum Coke						Natural Gas					All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)	Average Sulfur Percent by Weight	Percentage of Consumption	(Billion Btu)	(Thousand Mcf)	(Dollars per MMBtu)	(Dollars per Mcf)	Percentage of Consumption	(Dollars per MMBtu)
Annual Totals												
2009	252	9	1.65	46.54	5.11	102.8	81,134	79,308	5.18	5.30	105.0	4.58
2010	410	15	2.19	60.59	5.67	122.5	92,055	90,130	5.39	5.51	105.1	4.83
2011	268	9	W	W	5.46	147.4	95,287	93,306	5.20	5.31	107.2	W
2012	0	0	--	--	--	0.0	18,315	18,008	5.88	5.98	16.2	W
2013	0	0	--	--	--	0.0	5,497	5,450	W	W	4.6	W
2014	0	0	--	--	--	0.0	5,849	5,795	5.42	5.47	4.9	4.47
2015	0	0	--	--	--	0.0	6,499	6,371	4.11	4.19	5.5	3.76
2016	0	0	--	--	--	0.0	8,005	7,766	3.85	3.97	6.1	3.69
2017	0	0	--	--	--	0.0	7,841	7,593	3.82	3.95	4.9	3.75
2018	0	0	--	--	--	0.0	9,090	8,823	3.49	3.59	6.6	3.47
2019	0	0	--	--	--	0.0	9,429	9,087	3.26	3.39	6.7	3.26
Year 2017												
January	0	0	--	--	--	0.0	662	639	4.02	4.17	4.5	3.84
February	0	0	--	--	--	0.0	646	624	4.01	4.15	5.1	3.86
March	0	0	--	--	--	0.0	680	662	3.96	4.06	5.4	3.80
April	0	0	--	--	--	0.0	502	490	3.90	3.99	4.7	3.89
May	0	0	--	--	--	0.0	497	483	3.92	4.04	4.4	3.90
June	0	0	--	--	--	0.0	615	595	3.82	3.95	4.7	3.79
July	0	0	--	--	--	0.0	636	613	3.64	3.77	4.1	3.64
August	0	0	--	--	--	0.0	809	778	3.70	3.85	5.3	3.70
September	0	0	--	--	--	0.0	707	685	3.72	3.84	5.2	3.63
October	0	0	--	--	--	0.0	605	588	3.77	3.88	4.6	3.72
November	0	0	--	--	--	0.0	749	725	3.72	3.84	6.0	3.70
December	0	0	--	--	--	0.0	734	711	3.77	3.89	5.2	3.67
Year 2018												
January	0	0	--	--	--	0.0	844	818	3.63	3.74	7.1	3.56
February	0	0	--	--	--	0.0	709	688	3.72	3.84	6.5	3.69
March	0	0	--	--	--	0.0	768	746	3.59	3.69	6.8	3.58
April	0	0	--	--	--	0.0	732	713	3.49	3.58	7.3	3.49
May	0	0	--	--	--	0.0	776	758	3.47	3.55	7.4	3.47
June	0	0	--	--	--	0.0	670	650	3.57	3.67	5.8	3.57
July	0	0	--	--	--	0.0	790	760	3.39	3.52	5.8	3.39
August	0	0	--	--	--	0.0	786	764	3.42	3.52	5.8	3.42
September	0	0	--	--	--	0.0	744	723	3.38	3.48	6.3	3.38
October	0	0	--	--	--	0.0	792	770	3.36	3.45	7.2	3.33
November	0	0	--	--	--	0.0	723	701	3.41	3.52	6.6	3.37
December	0	0	--	--	--	0.0	756	732	3.41	3.52	6.6	3.39
Year 2019												
January	0	0	--	--	--	0.0	778	751	3.40	3.52	6.3	3.38
February	0	0	--	--	--	0.0	772	745	3.37	3.50	6.8	3.35
March	0	0	--	--	--	0.0	839	812	3.36	3.47	7.3	3.33
April	0	0	--	--	--	0.0	775	748	3.30	3.41	7.3	3.29
May	0	0	--	--	--	0.0	811	782	3.26	3.38	7.9	3.26
June	0	0	--	--	--	0.0	807	776	3.23	3.36	7.2	3.22
July	0	0	--	--	--	0.0	721	701	3.17	3.26	5.4	3.17
August	0	0	--	--	--	0.0	838	808	3.13	3.25	6.5	3.13
September	0	0	--	--	--	0.0	747	717	3.15	3.28	6.4	3.15
October	0	0	--	--	--	0.0	766	734	3.24	3.38	7.0	3.23
November	0	0	--	--	--	0.0	743	713	3.30	3.43	6.6	3.28
December	0	0	--	--	--	0.0	832	801	3.26	3.39	6.6	3.25

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Notes:

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PETROLEUM COKE - includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

NATURAL GAS - includes natural gas only. Prior to 2011, includes Other Gases.

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Table 7.11. Receipts, Average Cost, and Quality of Fossil Fuels: Industrial Sector, 2009 - 2019

Period	Coal						Petroleum Liquids					
	Receipts		Average Cost		Average Sulfur Percent by Weight	Percentage of Consumption	Receipts		Average Cost		Average Sulfur Percent by Weight	Percentage of Consumption
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)			(Billion Btu)	(Thousand Barrels)	(Dollars per MMBtu)	(Dollars per Barrel)		
Annual Totals												
2009	431,686	19,661	2.81	61.68	1.22	99.5	55,899	9,232	9.83	59.52	0.83	112.8
2010	468,991	21,492	2.75	60.08	1.26	87.2	33,276	5,554	13.21	79.15	0.93	125.6
2011	476,108	22,204	2.93	62.86	1.33	99.5	28,939	4,878	17.67	104.83	1.08	144.8
2012	285,172	13,206	3.02	65.24	1.33	65.8	6,739	1,095	W	W	1.52	40.8
2013	275,543	12,727	W	W	1.32	64.4	2,431	394	18.20	112.29	1.43	15.8
2014	281,867	13,050	2.97	64.15	1.33	68.4	2,290	373	17.91	109.99	1.43	15.6
2015	263,630	12,132	2.72	59.17	1.35	71.4	2,359	385	13.45	82.47	1.42	16.9
2016	210,749	9,859	2.67	57.01	1.30	67.0	2,541	412	10.51	64.79	1.27	18.3
2017	192,637	9,178	2.49	52.29	1.35	70.7	1,850	297	11.18	69.57	1.42	15.2
2018	170,730	8,224	2.47	51.38	1.30	67.2	2,319	372	13.46	83.97	1.35	15.9
2019	146,324	7,088	2.55	52.69	1.19	65.1	1,684	275	13.19	80.82	1.47	14.5
Year 2017												
January	15,758	742	2.51	53.37	1.38	58.7	128	21	11.64	72.27	1.06	13.0
February	15,865	744	2.57	54.74	1.18	69.1	121	19	11.56	72.24	1.36	15.2
March	17,861	858	2.48	51.66	1.34	75.2	178	29	10.66	66.36	1.22	18.9
April	16,089	759	2.62	55.59	1.23	75.4	160	26	11.82	74.12	1.27	16.6
May	16,329	796	2.44	50.13	1.16	76.3	155	25	11.19	69.26	1.21	17.6
June	15,911	757	2.41	50.55	1.37	72.5	142	23	10.34	64.95	1.11	17.7
July	15,852	763	2.46	51.07	1.30	73.2	95	15	10.75	66.88	1.30	12.4
August	16,644	784	2.51	53.36	1.36	74.6	110	18	10.55	65.94	1.55	14.0
September	14,897	715	2.52	52.38	1.17	72.3	151	24	11.07	69.03	1.51	17.2
October	15,687	741	2.52	53.40	1.36	67.5	149	24	11.43	71.09	1.58	15.9
November	15,335	734	2.46	51.43	1.43	68.1	199	32	11.67	72.03	1.71	13.2
December	16,408	785	2.40	50.09	1.89	68.9	263	42	11.14	69.14	1.79	13.5
Year 2018												
January	15,751	758	2.46	51.13	1.18	61.0	408	65	12.64	79.32	1.32	13.7
February	14,274	683	2.48	51.82	1.32	60.9	187	30	11.38	71.32	1.20	15.9
March	15,612	747	2.51	52.40	1.31	67.4	234	38	12.59	78.52	1.32	23.5
April	13,476	643	2.52	52.79	1.35	67.0	153	24	13.24	83.77	1.23	17.6
May	14,544	704	2.51	51.92	1.24	71.9	149	24	14.33	87.27	1.47	16.1
June	14,489	697	2.49	51.65	1.28	71.9	107	17	13.54	84.39	1.48	10.5
July	14,900	724	2.41	49.69	1.32	75.3	138	22	14.64	89.87	1.42	13.2
August	13,930	668	2.48	51.76	1.31	70.4	135	22	14.45	89.97	1.39	15.5
September	12,593	600	2.53	53.10	1.35	63.7	155	25	14.38	89.73	1.12	19.7
October	12,410	598	2.47	51.18	1.38	67.1	180	29	14.50	91.01	1.37	14.9
November	14,259	701	2.50	50.92	1.15	69.1	206	33	14.01	87.74	1.58	15.0
December	14,492	701	2.35	48.52	1.47	64.1	268	43	13.75	85.58	1.46	19.7
Year 2019												
January	12,678	629	2.49	50.14	1.13	56.2	154	25	12.98	80.23	1.24	7.5
February	12,842	617	2.61	54.43	1.16	61.4	199	33	13.77	82.99	1.45	18.7
March	13,424	629	2.68	57.20	1.49	67.5	126	21	13.43	82.27	1.63	14.2
April	11,765	561	2.64	55.30	1.25	62.8	223	36	12.89	79.74	1.54	24.0
May	12,720	623	2.51	51.21	0.97	71.3	92	15	14.12	86.68	1.48	12.6
June	11,705	567	2.49	51.38	1.22	67.2	131	21	13.04	79.96	1.55	18.3
July	11,385	551	2.45	50.57	1.32	65.1	80	13	11.99	74.33	1.41	12.7
August	10,876	530	2.39	49.14	1.23	62.0	112	18	12.56	77.49	1.66	15.4
September	11,131	539	2.48	51.28	1.24	66.3	154	25	13.15	80.17	1.58	20.8
October	11,889	586	2.59	52.47	1.21	68.4	136	22	13.01	79.34	1.42	17.2
November	13,255	645	2.59	53.19	1.05	71.3	137	22	13.67	83.44	1.46	9.7
December	12,654	612	2.67	55.16	1.07	64.4	141	23	13.33	81.47	1.25	15.8

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Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

COAL - includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas. Prior to 2011, synthesis gas was included in the category of Other Gases.

PETROLEUM LIQUIDS - includes distillate fuel oil and residual fuel oil. Prior to 2013, petroleum liquids included distillate fuel oil, residual fuel oil, kerosene, jet fuel, waste oil, and, beginning in 2011, propane. Prior to 2011, propane was included in the category of Other Gases.

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- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

- See the Technical Notes for fuel conversion factors.

- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Table 7.12. Receipts, Average Cost, and Quality of Fossil Fuels: Industrial Sector, 2009 - 2019 (continued)

Period	Petroleum Coke						Natural Gas					All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost
	(Billion Btu)	(Thousand Tons)	(Dollars per MMBtu)	(Dollars per Ton)	Average Sulfur Percent by Weight	Percentage of Consumption	(Billion Btu)	(Thousand Mcf)	(Dollars per MMBtu)	(Dollars per Mcf)	Percentage of Consumption	(Dollars per MMBtu)
Annual Totals												
2009	38,924	1,381	1.80	50.82	4.51	114.2	1,117,489	1,088,880	4.27	4.38	110.0	4.02
2010	35,866	1,269	2.46	69.38	4.90	100.5	1,166,768	1,135,917	4.64	4.77	110.4	4.24
2011	37,981	1,351	W	W	5.03	108.3	1,331,977	1,296,628	4.28	4.40	122.0	W
2012	23,861	858	2.62	72.96	5.86	42.2	834,245	813,288	2.97	3.05	70.8	W
2013	17,236	623	W	W	5.82	30.5	750,946	728,835	W	W	62.3	W
2014	9,736	358	2.56	69.67	5.83	23.2	742,347	718,360	4.54	4.69	62.7	4.12
2015	8,189	304	1.73	46.72	5.50	24.1	765,964	740,975	2.83	2.93	60.6	2.82
2016	3,664	135	2.00	54.12	5.84	11.2	744,034	721,358	2.65	2.74	59.6	2.68
2017	2,356	85	1.59	44.08	5.84	8.1	803,435	778,741	3.18	3.28	62.0	3.06
2018	1,911	71	1.75	47.47	5.74	7.1	792,297	769,790	3.39	3.49	58.6	3.25
2019	2,028	73	1.69	46.99	5.81	8.1	814,483	790,388	2.82	2.91	57.5	2.80
Year 2017												
January	0	0	--	--	--	0.0	69,097	66,861	3.62	3.75	62.2	3.43
February	0	0	--	--	--	0.0	66,943	64,869	3.19	3.29	66.9	3.08
March	0	0	--	--	--	0.0	69,912	67,776	2.90	3.00	65.7	2.83
April	0	0	--	--	--	0.0	66,465	64,429	3.26	3.36	65.1	3.15
May	0	0	--	--	--	0.0	66,784	64,714	3.30	3.41	64.0	3.15
June	271	9	1.25	35.84	5.75	9.5	66,326	64,294	3.26	3.36	61.8	3.10
July	253	9	1.25	34.50	5.85	9.4	67,649	65,606	3.21	3.31	58.9	3.07
August	296	11	1.25	34.50	5.85	10.9	65,687	63,678	3.08	3.17	58.8	2.97
September	257	9	1.77	48.91	5.85	11.7	62,978	61,019	3.10	3.20	59.5	3.00
October	893	32	1.77	48.91	5.85	35.4	63,059	61,210	3.08	3.17	58.8	2.97
November	386	14	1.77	48.91	5.85	16.1	66,896	64,844	3.01	3.11	62.4	2.93
December	0	0	--	--	--	0.0	71,639	69,441	3.11	3.21	60.5	3.00
Year 2018												
January	0	0	--	--	--	0.0	69,164	67,045	3.59	3.70	58.1	3.42
February	0	0	--	--	--	0.0	60,810	58,990	3.41	3.52	58.6	3.26
March	0	0	--	--	--	0.0	61,164	59,423	2.85	2.94	56.5	2.81
April	0	0	--	--	--	0.0	61,184	59,457	2.92	3.01	58.4	2.87
May	0	0	--	--	--	0.0	63,410	61,557	2.99	3.08	58.8	2.92
June	0	0	--	--	--	0.0	65,879	64,032	3.14	3.23	59.8	3.03
July	160	6	1.70	45.10	5.83	6.8	68,296	66,523	3.03	3.11	57.4	2.93
August	260	10	1.78	46.99	5.55	12.2	69,386	67,341	3.12	3.21	58.1	3.03
September	664	25	1.78	47.54	6.02	31.0	67,825	66,022	3.12	3.20	60.1	3.04
October	477	17	1.76	48.96	5.45	20.6	66,419	64,687	3.75	3.85	59.0	3.56
November	172	6	1.69	46.62	5.85	8.4	71,469	69,556	3.97	4.08	61.6	3.75
December	178	6	1.70	47.00	5.53	7.3	67,289	65,157	4.70	4.85	56.6	4.31
Year 2019												
January	0	0	--	--	--	0.0	73,583	71,442	3.76	3.87	59.0	3.59
February	0	0	--	--	--	0.0	64,847	62,775	3.44	3.56	58.1	3.33
March	0	0	--	--	--	0.0	66,748	64,830	3.13	3.22	57.6	3.07
April	0	0	--	--	--	0.0	64,259	62,480	2.85	2.93	59.7	2.85
May	0	0	--	--	--	0.0	66,202	64,348	2.75	2.83	57.8	2.73
June	0	0	--	--	--	0.0	64,540	62,725	2.63	2.70	56.5	2.62
July	43	2	1.71	46.96	5.81	1.7	69,836	67,819	2.49	2.56	57.3	2.49
August	615	23	1.75	46.99	5.75	30.2	70,509	68,322	2.37	2.45	57.1	2.39
September	743	26	1.63	47.00	5.56	30.6	66,121	64,014	2.56	2.65	56.0	2.57
October	627	23	1.72	47.00	6.17	30.1	65,572	63,624	2.46	2.54	55.7	2.49
November	0	0	--	--	--	0.0	69,632	67,560	2.77	2.86	57.8	2.76
December	0	0	--	--	--	0.0	72,635	70,448	2.62	2.70	57.8	2.64

Displayed values of zero may represent small values that round to zero.

NM = Not meaningful due to large relative standard error or excessive percentage change.

W = Withheld to avoid disclosure of individual company data.

Notes:

Beginning in January 2013, the threshold for reporting fuel receipts data was changed from 50 megawatts to 200 megawatts of nameplate capacity for plants primarily fueled by natural gas, petroleum coke, distillate fuel oil, and residual fuel oil. In addition, the requirement to report self-produced and minor fuels, i.e., blast furnace gas, other manufactured gases, kerosene, jet fuel, propane, and waste oils was eliminated. The threshold for coal plants remained at 50 megawatts. The following caveats for each fuel type should be noted:

PETROLEUM COKE - includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases.

NATURAL GAS - includes natural gas only. Prior to 2011, includes Other Gases.

- Values are final.

- See Glossary for definitions.

- Starting in January 2013, there may have been a shift in the continuity of Chapter 7 tables due to changes in the sample design of Form EIA-923 and the imputation process.

- See the EIA-923 section of the Technical Notes for a discussion of the sample design for the Form EIA-923 and predecessor forms.

- See the Technical Notes for fuel conversion factors.

- Totals may not equal the sum of components because of independent rounding.

Sources: U.S. Energy Information Administration (EIA), Form EIA-923, "Power Plant Operations Report" and predecessor forms including Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report" and Federal Energy Regulatory Commission (FERC), FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

**Table 7.13. Receipts of Coal Delivered for Electricity Generation by State, 2019 and 2018
(Thousand Tons)**

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	159	276	-42.0%	90	94	69	182	0	0	0	0
Connecticut	0	105	-100.0%	0	0	0	105	0	0	0	0
Maine	69	62	11.0%	0	0	69	62	0	0	0	0
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	90	94	-4.2%	90	94	0	0	0	0	0	0
Rhode Island	0	15	-100.0%	0	0	0	15	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	19,758	22,115	-11.0%	0	0	19,682	22,007	0	0	76	108
New Jersey	562	603	-6.8%	0	0	562	603	0	0	0	0
New York	105	356	-70.0%	0	0	105	347	0	0	0	9
Pennsylvania	19,091	21,156	-9.8%	0	0	19,015	21,057	0	0	76	99
East North Central	121,130	135,418	-11.0%	70,966	79,529	48,299	53,644	0	0	1,865	2,244
Illinois	34,332	42,205	-19.0%	6,705	7,544	25,845	32,505	0	0	1,781	2,156
Indiana	28,275	29,773	-5.0%	26,185	27,733	2,091	2,040	0	0	0	0
Michigan	21,214	22,395	-5.3%	20,965	22,146	247	241	0	0	2	9
Ohio	22,722	22,772	-0.2%	2,606	3,914	20,117	18,858	0	0	0	0
Wisconsin	14,587	18,272	-20.0%	14,505	18,193	0	0	0	0	82	80
West North Central	106,926	115,190	-7.2%	103,914	111,951	0	0	8	13	3,004	3,226
Iowa	15,988	15,309	4.4%	13,745	13,080	0	0	0	0	2,242	2,228
Kansas	11,291	12,592	-10.0%	11,291	12,592	0	0	0	0	0	0
Minnesota	11,460	12,904	-11.0%	11,460	12,725	0	0	0	0	0	178
Missouri	31,097	35,275	-12.0%	31,088	35,262	0	0	8	13	0	0
Nebraska	13,430	13,527	-0.7%	12,669	12,708	0	0	0	0	761	819
North Dakota	21,882	24,023	-8.9%	21,882	24,023	0	0	0	0	0	0
South Dakota	1,778	1,560	14.0%	1,778	1,560	0	0	0	0	0	0
South Atlantic	76,973	79,146	-2.7%	67,945	66,966	8,259	11,281	0	0	768	899
Delaware	71	35	100.0%	0	0	71	35	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	9,218	11,702	-21.0%	9,166	11,625	0	0	0	0	53	77
Georgia	15,353	14,953	2.7%	15,217	14,814	0	0	0	0	136	139
Maryland	2,881	4,637	-38.0%	0	0	2,788	4,450	0	0	92	188
North Carolina	12,803	11,130	15.0%	12,535	10,761	55	119	0	0	213	251
South Carolina	7,317	6,077	20.0%	7,099	6,067	198	0	0	0	19	11
Virginia	2,617	4,705	-44.0%	2,071	3,760	292	710	0	0	255	235
West Virginia	26,712	25,906	3.1%	21,857	19,939	4,855	5,967	0	0	0	0
East South Central	55,572	57,134	-2.7%	52,421	53,298	2,561	2,993	0	0	590	843
Alabama	15,107	14,648	3.1%	15,107	14,648	0	0	0	0	0	0
Kentucky	29,987	32,038	-6.4%	29,987	32,038	0	0	0	0	0	0
Mississippi	4,124	4,600	-10.0%	1,563	1,607	2,561	2,993	0	0	0	0
Tennessee	6,354	5,848	8.6%	5,763	5,005	0	0	0	0	590	843
West South Central	91,089	98,713	-7.7%	46,260	49,892	44,600	48,517	0	0	229	304
Arkansas	14,098	16,843	-16.0%	11,854	14,003	2,184	2,762	0	0	61	78
Louisiana	5,843	7,252	-19.0%	4,456	4,736	1,387	2,515	0	0	0	0
Oklahoma	4,833	8,774	-45.0%	4,665	7,436	0	1,112	0	0	169	226
Texas	66,315	65,845	0.7%	25,286	23,717	41,029	42,128	0	0	0	0
Mountain	80,585	82,404	-2.2%	70,392	73,210	10,192	9,194	0	0	0	0
Arizona	13,396	16,162	-17.0%	13,396	16,162	0	0	0	0	0	0
Colorado	13,935	14,505	-3.9%	13,935	14,505	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	8,917	7,971	12.0%	256	239	8,661	7,731	0	0	0	0
Nevada	1,697	1,167	45.0%	1,093	582	604	585	0	0	0	0
New Mexico	8,495	7,520	13.0%	8,495	7,520	0	0	0	0	0	0
Utah	11,481	10,975	4.6%	11,079	10,570	402	405	0	0	0	0
Wyoming	22,663	24,104	-6.0%	22,138	23,632	525	472	0	0	0	0
Pacific Contiguous	6,950	4,833	44.0%	1,599	764	4,795	3,469	0	0	555	600
California	555	600	-7.4%	0	0	0	0	0	0	555	600
Oregon	1,599	764	109.0%	1,599	764	0	0	0	0	0	0
Washington	4,795	3,469	38.0%	0	0	4,795	3,469	0	0	0	0
Pacific Noncontiguous	1,011	987	2.4%	327	260	683	727	0	0	0	0
Alaska	327	260	26.0%	327	260	0	0	0	0	0	0
Hawaii	683	727	-6.0%	0	0	683	727	0	0	0	0
U.S. Total	560,153	596,215	-6.0%	413,915	435,964	139,141	152,015	8	13	7,088	8,224

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Notes:
 See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.
 Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.
 Coal includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.14. Receipts of Petroleum Liquids Delivered for Electricity Generation by State, 2019 and 2018
(Thousand Barrels)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	357	1,724	-79.0%	21	238	336	1,486	0	0	0	0
Connecticut	10	395	-98.0%	0	0	10	395	0	0	0	0
Maine	152	298	-49.0%	0	0	152	298	0	0	0	0
Massachusetts	155	487	-68.0%	8	33	147	454	0	0	0	0
New Hampshire	13	365	-96.0%	13	206	0	160	0	0	0	0
Rhode Island	28	179	-85.0%	0	0	28	179	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	1,293	3,888	-67.0%	653	1,041	567	2,751	0	0	73	96
New Jersey	77	264	-71.0%	0	0	77	264	0	0	0	0
New York	823	2,437	-66.0%	653	1,041	168	1,375	0	0	1	21
Pennsylvania	393	1,187	-67.0%	0	0	321	1,112	0	0	72	75
East North Central	901	875	3.1%	555	497	313	347	0	0	33	30
Illinois	90	98	-8.6%	4	6	86	92	0	0	0	0
Indiana	215	208	3.0%	215	207	0	1	0	0	0	0
Michigan	153	159	-3.9%	140	151	0	0	0	0	13	8
Ohio	393	323	22.0%	153	58	220	244	0	0	20	21
Wisconsin	51	86	-40.0%	44	76	8	11	0	0	0	0
West North Central	617	575	7.2%	614	572	3	3	0	0	0	0
Iowa	115	117	-1.8%	115	117	0	0	0	0	0	0
Kansas	146	105	40.0%	146	105	0	0	0	0	0	0
Minnesota	76	51	49.0%	73	48	3	3	0	0	0	0
Missouri	177	206	-14.0%	177	206	0	0	0	0	0	0
Nebraska	19	9	112.0%	19	9	0	0	0	0	0	0
North Dakota	71	77	-8.1%	71	77	0	0	0	0	0	0
South Dakota	13	11	13.0%	13	11	0	0	0	0	0	0
South Atlantic	1,699	5,402	-69.0%	1,315	3,750	221	1,410	0	0	163	242
Delaware	7	331	-98.0%	0	0	7	331	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	423	495	-15.0%	387	445	0	0	0	0	36	51
Georgia	234	458	-49.0%	156	325	4	72	0	0	73	61
Maryland	186	628	-70.0%	0	0	186	628	0	0	0	0
North Carolina	243	1,130	-78.0%	207	1,023	4	48	0	0	32	59
South Carolina	110	623	-82.0%	99	580	2	0	0	0	9	43
Virginia	247	1,439	-83.0%	218	1,123	18	288	0	0	12	28
West Virginia	248	299	-17.0%	248	254	0	44	0	0	0	0
East South Central	287	511	-44.0%	267	427	14	79	0	0	7	5
Alabama	32	144	-78.0%	18	65	14	79	0	0	0	0
Kentucky	142	147	-3.2%	142	147	0	0	0	0	0	0
Mississippi	23	37	-38.0%	23	37	0	0	0	0	0	0
Tennessee	90	183	-51.0%	84	178	0	0	0	0	7	5
West South Central	230	188	22.0%	184	151	46	36	0	0	0	0
Arkansas	75	48	56.0%	53	35	22	13	0	0	0	0
Louisiana	37	27	36.0%	37	27	0	0	0	0	0	0
Oklahoma	35	30	14.0%	35	30	0	0	0	0	0	0
Texas	83	82	1.1%	59	59	24	23	0	0	0	0
Mountain	362	298	21.0%	337	266	25	32	0	0	0	0
Arizona	124	94	32.0%	124	94	0	0	0	0	0	0
Colorado	5	14	-62.0%	5	14	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	18	25	-26.0%	0	0	18	25	0	0	0	0
Nevada	25	20	23.0%	20	15	5	5	0	0	0	0
New Mexico	48	34	42.0%	48	34	0	0	0	0	0	0
Utah	69	56	24.0%	66	54	2	2	0	0	0	0
Wyoming	72	55	30.0%	72	55	0	0	0	0	0	0
Pacific Contiguous	28	20	41.0%	11	5	17	15	0	0	0	0
California	0	0	--	0	0	0	0	0	0	0	0
Oregon	4	0	--	4	0	0	0	0	0	0	0
Washington	23	20	18.0%	6	5	17	15	0	0	0	0
Pacific Noncontiguous	8,937	8,810	1.4%	7,054	6,948	1,883	1,862	0	0	0	0
Alaska	27	14	94.0%	27	14	0	0	0	0	0	0
Hawaii	8,910	8,796	1.3%	7,027	6,935	1,883	1,862	0	0	0	0
U.S. Total	14,711	22,290	-34.0%	11,010	13,896	3,425	8,022	0	0	275	372

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 NM = Not meaningful due to large relative standard error or excessive percentage change.
 W = Withheld to avoid disclosure of individual company data.

Notes:
 See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.
 Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.
 Petroleum Liquids includes distillate and residual fuel oils.
 See the Technical Notes for fuel conversion factors.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

**Table 7.15. Receipts of Petroleum Coke Delivered for Electricity Generation by State, 2019 and 2018
(Thousand Tons)**

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	0	0	--	0	0	0	0	0	0	0	0
Connecticut	0	0	--	0	0	0	0	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	0	0	--	0	0	0	0	0	0	0	0
New Hampshire	0	0	--	0	0	0	0	0	0	0	0
Rhode Island	0	0	--	0	0	0	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	--	0	0	0	0	0	0	0	0
New Jersey	0	0	--	0	0	0	0	0	0	0	0
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	0	0	--	0	0	0	0	0	0	0	0
East North Central	325	599	-46.0%	325	599	0	0	0	0	0	0
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	280	539	-48.0%	280	539	0	0	0	0	0	0
Ohio	0	0	--	0	0	0	0	0	0	0	0
Wisconsin	45	60	-25.0%	45	60	0	0	0	0	0	0
West North Central	73	71	3.5%	0	0	0	0	0	0	73	71
Iowa	73	71	3.5%	0	0	0	0	0	0	73	71
Kansas	0	0	--	0	0	0	0	0	0	0	0
Minnesota	0	0	--	0	0	0	0	0	0	0	0
Missouri	0	0	--	0	0	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	0	0	--	0	0	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	429	784	-45.0%	429	784	0	0	0	0	0	0
Delaware	0	0	--	0	0	0	0	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	429	784	-45.0%	429	784	0	0	0	0	0	0
Georgia	0	0	--	0	0	0	0	0	0	0	0
Maryland	0	0	--	0	0	0	0	0	0	0	0
North Carolina	0	0	--	0	0	0	0	0	0	0	0
South Carolina	0	0	--	0	0	0	0	0	0	0	0
Virginia	0	0	--	0	0	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	0	0	--	0	0	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	0	0	--	0	0	0	0	0	0	0	0
West South Central	1,142	1,557	-27.0%	1,142	1,557	0	0	0	0	0	0
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	1,142	1,557	-27.0%	1,142	1,557	0	0	0	0	0	0
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	0	0	--	0	0	0	0	0	0	0	0
Mountain	0	0	--	0	0	0	0	0	0	0	0
Arizona	0	0	--	0	0	0	0	0	0	0	0
Colorado	0	0	--	0	0	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	0	0	--	0	0	0	0	0	0	0	0
New Mexico	0	0	--	0	0	0	0	0	0	0	0
Utah	0	0	--	0	0	0	0	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	0	0	--	0	0	0	0	0	0	0	0
California	0	0	--	0	0	0	0	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	0	0	--	0	0	0	0	0	0	0	0
Pacific Noncontiguous	0	0	--	0	0	0	0	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	1,969	3,010	-35.0%	1,896	2,940	0	0	0	0	73	71

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 Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.
 Petroleum Coke includes petroleum coke-derived synthesis gas.
 See the Technical Notes for fuel conversion factors.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.16. Receipts of Natural Gas Delivered for Electricity Generation by State, 2019 and 2018
(Million Cubic Feet)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	338,041	357,295	-5.4%	646	1,348	337,395	355,948	0	0	0	0
Connecticut	140,794	132,334	6.4%	0	0	140,794	132,334	0	0	0	0
Maine	9,373	13,614	-31.0%	0	0	9,373	13,614	0	0	0	0
Massachusetts	110,879	132,566	-16.0%	567	947	110,313	131,619	0	0	0	0
New Hampshire	25,487	21,600	18.0%	79	400	25,408	21,199	0	0	0	0
Rhode Island	51,509	57,181	-9.9%	0	0	51,509	57,181	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	1,299,674	1,176,917	10.0%	88,480	92,273	1,201,102	1,074,141	0	0	10,092	10,503
New Jersey	285,788	278,523	2.6%	0	0	285,788	278,523	0	0	0	0
New York	358,271	382,447	-6.3%	88,480	92,273	262,557	282,569	0	0	7,234	7,605
Pennsylvania	655,615	515,948	27.0%	0	0	652,757	513,049	0	0	2,858	2,899
East North Central	1,140,342	980,851	16.0%	382,520	345,229	736,954	614,152	6,889	6,707	13,979	14,763
Illinois	159,869	128,983	24.0%	11,328	9,674	148,518	119,272	0	0	22	37
Indiana	211,990	182,600	16.0%	99,028	87,691	112,961	94,909	0	0	0	0
Michigan	258,751	231,528	12.0%	80,521	68,184	165,409	150,349	6,889	6,707	5,932	6,288
Ohio	365,929	316,263	16.0%	61,895	71,616	298,611	238,899	0	0	5,423	5,748
Wisconsin	143,803	121,477	18.0%	129,747	108,063	11,454	10,722	0	0	2,602	2,691
West North Central	267,715	225,291	19.0%	222,855	195,270	37,931	22,828	2,197	2,116	4,732	5,079
Iowa	67,408	64,610	4.3%	62,676	59,608	0	0	0	0	4,732	5,002
Kansas	23,307	23,736	-1.8%	23,307	23,736	0	0	0	0	0	0
Minnesota	83,832	55,926	50.0%	63,047	47,747	20,773	8,093	12	10	0	77
Missouri	59,690	54,787	8.9%	40,347	37,946	17,158	14,735	2,185	2,106	0	0
Nebraska	11,470	9,068	26.0%	11,470	9,068	0	0	0	0	0	0
North Dakota	14,877	9,873	51.0%	14,877	9,873	0	0	0	0	0	0
South Dakota	7,131	7,291	-2.2%	7,131	7,291	0	0	0	0	0	0
South Atlantic	2,775,146	2,622,122	5.8%	2,289,939	2,144,723	449,301	440,969	0	0	35,906	36,430
Delaware	25,354	33,332	-24.0%	0	0	25,354	33,332	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	1,289,171	1,229,395	4.9%	1,243,206	1,178,822	41,287	46,251	0	0	4,677	4,322
Georgia	434,294	380,482	14.0%	328,913	284,740	96,900	86,922	0	0	8,482	8,821
Maryland	96,466	92,375	4.4%	23,002	22,077	72,313	67,520	0	0	1,151	2,778
North Carolina	308,738	331,999	-7.0%	240,733	280,625	65,194	48,593	0	0	2,812	2,781
South Carolina	178,437	169,867	5.0%	173,081	147,310	4,403	21,601	0	0	954	956
Virginia	419,047	367,368	14.0%	276,888	229,292	131,541	127,744	0	0	10,618	10,332
West Virginia	23,638	17,306	37.0%	4,117	1,858	12,309	9,007	0	0	7,212	6,440
East South Central	1,019,264	1,007,842	1.1%	737,878	685,293	256,884	302,245	0	0	24,502	20,304
Alabama	399,066	398,878	0.0%	146,717	138,322	252,349	260,556	0	0	0	0
Kentucky	113,295	112,670	0.6%	108,870	105,054	4,426	7,616	0	0	0	0
Mississippi	363,823	370,210	-1.7%	363,714	336,137	110	34,073	0	0	0	0
Tennessee	143,079	126,084	13.0%	118,577	105,779	0	0	0	0	24,502	20,304
West South Central	3,240,210	3,009,544	7.7%	1,082,072	980,145	1,485,951	1,376,247	0	0	672,187	653,152
Arkansas	158,293	150,505	5.2%	143,446	134,446	12,136	13,448	0	0	2,711	2,612
Louisiana	558,627	500,434	12.0%	289,838	256,687	43,595	34,679	0	0	225,194	209,068
Oklahoma	337,151	318,549	5.8%	220,793	204,417	110,846	109,692	0	0	5,511	4,440
Texas	2,186,139	2,040,056	7.2%	427,995	384,596	1,319,374	1,218,428	0	0	438,770	437,032
Mountain	828,014	740,594	12.0%	692,679	623,305	134,995	116,686	0	0	341	604
Arizona	348,973	278,303	25.0%	267,937	220,964	81,036	57,340	0	0	0	0
Colorado	122,200	118,141	3.4%	105,060	99,700	17,140	18,441	0	0	0	0
Idaho	25,908	19,987	30.0%	13,721	8,914	12,187	11,073	0	0	0	0
Montana	2,780	2,749	1.1%	2,749	2,737	31	12	0	0	0	0
Nevada	173,732	180,683	-3.8%	173,732	180,683	0	0	0	0	0	0
New Mexico	89,193	82,962	7.5%	64,609	53,157	24,584	29,805	0	0	0	0
Utah	62,078	55,974	11.0%	61,738	55,369	0	0	0	0	341	604
Wyoming	3,149	1,796	75.0%	3,133	1,782	16	15	0	0	0	0
Pacific Contiguous	769,534	748,670	2.8%	318,521	295,237	422,364	424,478	0	0	28,649	28,955
California	528,794	559,705	-5.5%	183,436	189,598	316,709	341,152	0	0	28,649	28,955
Oregon	143,846	123,735	16.0%	70,838	62,606	73,008	61,129	0	0	0	0
Washington	96,895	65,229	49.0%	64,247	43,033	32,648	22,197	0	0	0	0
Pacific Noncontiguous	15,546	16,636	-6.6%	15,546	16,636	0	0	0	0	0	0
Alaska	15,546	16,636	-6.6%	15,546	16,636	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	11,693,486	10,885,764	7.4%	5,831,134	5,379,459	5,062,877	4,727,692	9,087	8,823	790,388	769,790

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Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.17. Average Cost of Coal Delivered for Electricity Generation by State, 2019 and 2018
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018
New England	W	4.37	W	3.35	3.87	W	4.64
Connecticut	--	W	W	--	--	--	W
Maine	W	W	W	--	--	W	W
Massachusetts	--	--	--	--	--	--	--
New Hampshire	3.35	3.87	-13.0%	3.35	3.87	--	--
Rhode Island	--	W	W	--	--	--	W
Vermont	--	--	--	--	--	--	--
Middle Atlantic	1.88	2.15	-13.0%	--	--	1.88	2.15
New Jersey	W	W	W	--	--	W	W
New York	W	W	W	--	--	W	W
Pennsylvania	W	2.09	W	--	--	W	2.09
East North Central	1.98	1.99	-0.5%	2.11	2.11	1.80	1.82
Illinois	W	1.77	W	1.97	1.88	W	1.75
Indiana	W	W	W	2.12	2.11	W	W
Michigan	W	W	W	2.09	2.12	W	W
Ohio	1.79	W	W	1.82	1.77	1.79	W
Wisconsin	2.22	2.28	-2.6%	2.22	2.28	--	--
West North Central	1.63	1.71	-4.7%	1.63	1.71	--	--
Iowa	1.54	1.63	-5.5%	1.54	1.63	--	--
Kansas	1.62	1.71	-5.3%	1.62	1.71	--	--
Minnesota	2.02	2.19	-7.8%	2.02	2.19	--	--
Missouri	1.67	1.80	-7.2%	1.67	1.80	--	--
Nebraska	1.23	1.26	-2.4%	1.23	1.26	--	--
North Dakota	1.63	1.55	5.2%	1.63	1.55	--	--
South Dakota	1.78	1.87	-4.8%	1.78	1.87	--	--
South Atlantic	2.57	2.64	-2.7%	2.59	2.70	2.38	2.30
Delaware	W	W	W	--	--	W	W
District of Columbia	--	--	--	--	--	--	--
Florida	2.83	2.88	-1.7%	2.83	2.88	--	--
Georgia	2.69	2.75	-2.2%	2.69	2.75	--	--
Maryland	2.66	2.53	5.1%	--	--	2.66	2.53
North Carolina	W	3.15	W	2.80	3.15	W	3.97
South Carolina	W	3.33	W	3.20	3.33	W	--
Virginia	W	W	W	2.77	2.67	W	W
West Virginia	2.08	2.09	-0.5%	2.11	2.14	1.96	1.90
East South Central	W	W	W	2.06	2.08	W	W
Alabama	2.29	2.27	0.9%	2.29	2.27	--	--
Kentucky	1.91	1.96	-2.6%	1.91	1.96	--	--
Mississippi	W	W	W	2.94	2.69	W	W
Tennessee	2.14	2.16	-0.9%	2.14	2.16	--	--
West South Central	1.83	1.88	-2.7%	2.07	2.08	1.58	1.66
Arkansas	W	W	W	1.97	1.98	W	W
Louisiana	W	W	W	3.11	3.12	W	W
Oklahoma	1.73	W	W	1.73	1.77	--	W
Texas	W	1.76	W	1.99	2.04	W	1.60
Mountain	W	W	W	2.01	2.00	W	W
Arizona	2.56	2.43	5.3%	2.56	2.43	--	--
Colorado	1.74	1.64	6.1%	1.74	1.64	--	--
Idaho	--	--	--	--	--	--	--
Montana	W	W	W	1.95	2.01	W	W
Nevada	W	W	W	2.76	3.07	W	W
New Mexico	2.49	2.48	0.4%	2.49	2.48	--	--
Utah	1.97	2.02	-2.5%	1.97	2.02	--	--
Wyoming	W	W	W	1.63	1.68	W	W
Pacific Contiguous	W	W	W	2.27	2.34	W	W
California	--	--	--	--	--	--	--
Oregon	2.27	2.34	-3.0%	2.27	2.34	--	--
Washington	W	W	W	--	--	W	W
Pacific Noncontiguous	W	W	W	3.51	3.28	W	W
Alaska	3.51	3.28	7.0%	3.51	3.28	--	--
Hawaii	W	W	W	--	--	W	W
U.S. Total	2.01	2.05	-2.0%	2.08	2.11	1.81	1.89

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 Coal includes anthracite, bituminous, subbituminous, lignite, waste coal, and coal-derived synthesis gas.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.18. Average Cost of Petroleum Liquids Delivered for Electricity Generation by State, 2019 and 2018
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018
New England	11.62	13.08	-11.0%	16.64	11.89	11.32	13.29
Connecticut	16.68	14.91	12.0%	--	--	16.68	14.91
Maine	W	9.78	W	--	--	W	9.78
Massachusetts	11.61	12.59	-7.8%	14.70	16.01	11.45	12.31
New Hampshire	17.80	W	W	17.80	11.29	--	W
Rhode Island	W	W	W	--	--	W	W
Vermont	--	--	--	--	--	--	--
Middle Atlantic	W	14.02	W	12.01	12.12	W	14.88
New Jersey	13.81	15.71	-12.0%	--	--	13.81	15.71
New York	12.64	13.16	-4.0%	12.01	12.12	15.20	14.00
Pennsylvania	W	16.08	W	--	--	W	16.08
East North Central	15.15	W	W	14.70	16.28	15.93	W
Illinois	W	16.82	W	15.71	16.39	W	16.84
Indiana	14.86	W	W	14.86	16.34	--	W
Michigan	13.95	15.72	-11.0%	13.95	15.72	--	--
Ohio	15.44	W	W	15.44	16.36	15.44	W
Wisconsin	W	17.16	W	13.68	17.16	W	--
West North Central	14.72	16.23	-9.3%	14.72	16.23	--	--
Iowa	14.56	16.27	-11.0%	14.56	16.27	--	--
Kansas	14.92	16.50	-9.6%	14.92	16.50	--	--
Minnesota	14.83	16.47	-10.0%	14.83	16.47	--	--
Missouri	14.73	16.15	-8.8%	14.73	16.15	--	--
Nebraska	14.87	17.36	-14.0%	14.87	17.36	--	--
North Dakota	14.49	15.56	-6.9%	14.49	15.56	--	--
South Dakota	14.19	17.17	-17.0%	14.19	17.17	--	--
South Atlantic	14.52	14.88	-2.4%	14.60	15.16	14.06	13.95
Delaware	W	W	W	--	--	W	W
District of Columbia	--	--	--	--	--	--	--
Florida	15.33	16.43	-6.7%	15.33	16.43	--	--
Georgia	W	15.64	W	14.98	15.66	W	15.56
Maryland	14.20	14.01	1.4%	--	--	14.20	14.01
North Carolina	W	W	W	14.67	17.12	W	W
South Carolina	W	17.22	W	15.13	17.22	W	--
Virginia	W	W	W	11.78	11.71	W	W
West Virginia	15.51	W	W	15.51	16.62	--	W
East South Central	W	W	W	14.55	15.98	W	W
Alabama	W	W	W	15.13	16.26	W	W
Kentucky	14.68	15.67	-6.3%	14.68	15.67	--	--
Mississippi	14.35	15.64	-8.2%	14.35	15.64	--	--
Tennessee	14.27	16.21	-12.0%	14.27	16.21	--	--
West South Central	W	W	W	14.71	15.96	W	W
Arkansas	W	W	W	14.74	16.48	W	W
Louisiana	14.61	15.18	-3.8%	14.61	15.18	--	--
Oklahoma	15.28	16.20	-5.7%	15.28	16.20	--	--
Texas	W	W	W	14.41	15.89	W	W
Mountain	16.89	W	W	16.96	18.21	15.98	W
Arizona	16.89	17.24	-2.0%	16.89	17.24	--	--
Colorado	17.67	16.41	7.7%	17.67	16.41	--	--
Idaho	--	--	--	--	--	--	--
Montana	W	W	W	--	--	W	W
Nevada	W	W	W	16.25	18.47	W	W
New Mexico	19.01	19.37	-1.9%	19.01	19.37	--	--
Utah	W	W	W	16.75	19.21	W	W
Wyoming	16.08	18.53	-13.0%	16.08	18.53	--	--
Pacific Contiguous	W	W	W	14.80	17.24	W	W
California	--	--	--	--	--	--	--
Oregon	12.45	--	--	12.45	--	--	--
Washington	W	W	W	16.52	17.24	W	W
Pacific Noncontiguous	W	W	W	12.87	13.91	W	W
Alaska	15.74	17.76	-11.0%	15.74	17.76	--	--
Hawaii	W	W	W	12.86	13.90	W	W
U.S. Total	13.63	14.44	-5.6%	13.40	14.39	14.40	14.52

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 Petroleum Liquids includes distillate and residual fuel oils.
 See the Technical Notes for fuel conversion factors.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.19. Average Cost of Petroleum Coke Delivered for Electricity Generation by State, 2019 and 2018
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018
New England	--	--	--	--	--	--	--
Connecticut	--	--	--	--	--	--	--
Maine	--	--	--	--	--	--	--
Massachusetts	--	--	--	--	--	--	--
New Hampshire	--	--	--	--	--	--	--
Rhode Island	--	--	--	--	--	--	--
Vermont	--	--	--	--	--	--	--
Middle Atlantic	--	--	--	--	--	--	--
New Jersey	--	--	--	--	--	--	--
New York	--	--	--	--	--	--	--
Pennsylvania	--	--	--	--	--	--	--
East North Central	1.58	1.51	4.6%	1.58	1.51	--	--
Illinois	--	--	--	--	--	--	--
Indiana	--	--	--	--	--	--	--
Michigan	1.54	1.48	4.1%	1.54	1.48	--	--
Ohio	--	--	--	--	--	--	--
Wisconsin	1.86	1.79	3.9%	1.86	1.79	--	--
West North Central	--	--	--	--	--	--	--
Iowa	--	--	--	--	--	--	--
Kansas	--	--	--	--	--	--	--
Minnesota	--	--	--	--	--	--	--
Missouri	--	--	--	--	--	--	--
Nebraska	--	--	--	--	--	--	--
North Dakota	--	--	--	--	--	--	--
South Dakota	--	--	--	--	--	--	--
South Atlantic	2.52	3.14	-20.0%	2.52	3.14	--	--
Delaware	--	--	--	--	--	--	--
District of Columbia	--	--	--	--	--	--	--
Florida	2.52	3.14	-20.0%	2.52	3.14	--	--
Georgia	--	--	--	--	--	--	--
Maryland	--	--	--	--	--	--	--
North Carolina	--	--	--	--	--	--	--
South Carolina	--	--	--	--	--	--	--
Virginia	--	--	--	--	--	--	--
West Virginia	--	--	--	--	--	--	--
East South Central	--	--	--	--	--	--	--
Alabama	--	--	--	--	--	--	--
Kentucky	--	--	--	--	--	--	--
Mississippi	--	--	--	--	--	--	--
Tennessee	--	--	--	--	--	--	--
West South Central	1.79	2.65	-32.0%	1.79	2.65	--	--
Arkansas	--	--	--	--	--	--	--
Louisiana	1.79	2.65	-32.0%	1.79	2.65	--	--
Oklahoma	--	--	--	--	--	--	--
Texas	--	--	--	--	--	--	--
Mountain	--	--	--	--	--	--	--
Arizona	--	--	--	--	--	--	--
Colorado	--	--	--	--	--	--	--
Idaho	--	--	--	--	--	--	--
Montana	--	--	--	--	--	--	--
Nevada	--	--	--	--	--	--	--
New Mexico	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--
Wyoming	--	--	--	--	--	--	--
Pacific Contiguous	--	--	--	--	--	--	--
California	--	--	--	--	--	--	--
Oregon	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--
Pacific Noncontiguous	--	--	--	--	--	--	--
Alaska	--	--	--	--	--	--	--
Hawaii	--	--	--	--	--	--	--
U.S. Total	1.92	2.56	-25.0%	1.92	2.56	--	--

Displayed values of zero may represent small values that round to zero.
 NM = Not meaningful due to large relative standard error or excessive percentage change.
 W = Withheld to avoid disclosure of individual company data.

Notes:
 See Glossary for definitions. Values are final.
 See Technical Notes for a discussion of the sample design for the Form EIA-923.
 Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.
 Petroleum Coke includes petroleum coke-derived synthesis gas.
 See the Technical Notes for fuel conversion factors.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.20. Average Cost of Natural Gas Delivered for Electricity Generation by State, 2019 and 2018
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2019	Year 2018	Percentage Change	Year 2019	Year 2018	Year 2019	Year 2018
New England	W	4.62	W	3.84	4.76	W	4.62
Connecticut	3.51	4.67	-25.0%	--	--	3.51	4.67
Maine	W	W	W	--	--	W	W
Massachusetts	4.37	4.75	-8.0%	3.32	4.26	4.38	4.76
New Hampshire	W	W	W	7.51	5.95	W	W
Rhode Island	3.22	4.10	-21.0%	--	--	3.22	4.10
Vermont	--	--	--	--	--	--	--
Middle Atlantic	2.61	3.29	-21.0%	3.23	4.11	2.56	3.20
New Jersey	2.80	3.07	-8.8%	--	--	2.80	3.07
New York	2.96	3.76	-21.0%	3.23	4.11	2.85	3.62
Pennsylvania	2.35	3.06	-23.0%	--	--	2.35	3.06
East North Central	2.62	3.22	-19.0%	2.70	3.30	2.58	3.18
Illinois	W	3.37	W	2.94	3.61	W	3.35
Indiana	2.59	3.27	-21.0%	2.71	3.38	2.49	3.18
Michigan	2.60	3.25	-20.0%	2.72	3.48	2.55	3.15
Ohio	2.44	3.12	-22.0%	2.55	3.17	2.41	3.11
Wisconsin	W	3.19	W	2.74	3.19	W	--
West North Central	W	W	W	2.70	3.18	W	W
Iowa	2.48	2.93	-15.0%	2.48	2.93	--	--
Kansas	2.78	3.22	-14.0%	2.78	3.22	--	--
Minnesota	W	W	W	2.92	3.47	W	W
Missouri	W	W	W	2.47	3.30	W	W
Nebraska	2.93	3.54	-17.0%	2.93	3.54	--	--
North Dakota	3.07	2.83	8.5%	3.07	2.83	--	--
South Dakota	2.54	2.81	-9.6%	2.54	2.81	--	--
South Atlantic	3.42	4.22	-19.0%	3.52	4.32	2.79	3.53
Delaware	--	--	--	--	--	--	--
District of Columbia	--	--	--	--	--	--	--
Florida	3.72	W	W	3.73	4.38	3.40	W
Georgia	2.88	3.90	-26.0%	2.87	4.00	2.91	3.53
Maryland	3.11	3.86	-19.0%	3.54	3.64	2.98	3.93
North Carolina	3.58	4.31	-17.0%	3.79	4.41	2.79	3.73
South Carolina	3.17	4.17	-24.0%	3.17	4.17	--	--
Virginia	3.15	4.14	-24.0%	3.37	4.52	2.47	3.15
West Virginia	2.20	W	W	2.19	3.22	2.20	W
East South Central	2.84	3.31	-14.0%	2.85	3.30	2.80	3.34
Alabama	W	W	W	2.88	3.40	W	W
Kentucky	W	W	W	3.22	3.59	W	W
Mississippi	W	W	W	2.73	3.21	W	W
Tennessee	2.85	3.17	-10.0%	2.85	3.17	--	--
West South Central	2.40	3.09	-22.0%	2.38	3.07	2.42	3.11
Arkansas	W	W	W	2.61	3.30	W	W
Louisiana	W	W	W	2.70	3.31	W	W
Oklahoma	W	W	W	2.39	2.76	W	W
Texas	2.33	3.09	-25.0%	2.09	2.98	2.43	3.13
Mountain	2.62	W	W	2.58	3.08	3.02	W
Arizona	W	2.96	W	2.14	2.90	W	3.33
Colorado	W	W	W	3.07	3.62	W	W
Idaho	4.09	3.59	14.0%	4.09	3.59	--	--
Montana	W	W	W	1.59	1.30	W	W
Nevada	3.06	3.16	-3.2%	3.06	3.16	--	--
New Mexico	1.26	2.42	-48.0%	1.26	2.42	--	--
Utah	3.07	3.11	-1.3%	3.07	3.11	--	--
Wyoming	W	W	W	3.07	3.77	W	W
Pacific Contiguous	3.45	3.94	-12.0%	3.47	3.69	3.43	4.19
California	3.76	4.50	-16.0%	4.10	4.44	3.50	4.55
Oregon	W	W	W	2.21	2.23	W	W
Washington	W	W	W	3.32	2.94	W	W
Pacific Noncontiguous	6.95	6.72	3.4%	6.95	6.72	--	--
Alaska	6.95	6.72	3.4%	6.95	6.72	--	--
Hawaii	--	--	--	--	--	--	--
U.S. Total	2.89	3.56	-19.0%	3.03	3.68	2.70	3.40

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 W = Withheld to avoid disclosure of individual company data.

Notes:
 See Glossary for definitions. Values are final.
 See Technical Notes for a discussion of the sample design for the Form EIA-923.
 Totals may not equal sum of components because of independent rounding. Percentage change is calculated before rounding.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

**Table 7.21. Receipts and Quality of Coal by Rank Delivered for Electricity Generation:
Total (All Sectors) by State, 2019**

Census Division and State	Bituminous			Subbituminous			Lignite		
	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight
New England	159	1.36	7.4	0	--	--	0	--	--
Connecticut	0	--	--	0	--	--	0	--	--
Maine	69	0.77	7.9	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	90	1.84	7.0	0	--	--	0	--	--
Rhode Island	0	--	--	0	--	--	0	--	--
Vermont	0	--	--	0	--	--	0	--	--
Middle Atlantic	14,879	2.72	9.2	0	--	--	0	--	--
New Jersey	562	1.73	7.7	0	--	--	0	--	--
New York	105	2.85	8.4	0	--	--	0	--	--
Pennsylvania	14,212	2.75	9.3	0	--	--	0	--	--
East North Central	60,981	3.23	10.3	60,149	0.24	4.7	0	--	--
Illinois	9,941	3.31	19.1	24,390	0.21	4.6	0	--	--
Indiana	25,962	2.86	9.0	2,313	0.22	4.5	0	--	--
Michigan	1,829	2.33	7.6	19,385	0.26	4.7	0	--	--
Ohio	22,655	3.67	9.1	68	0.29	5.2	0	--	--
Wisconsin	594	2.39	8.2	13,993	0.24	4.8	0	--	--
West North Central	1,060	3.04	9.2	83,985	0.27	5.0	21,882	0.76	9.8
Iowa	445	3.20	8.3	15,543	0.24	4.7	0	--	--
Kansas	128	3.43	12.8	11,163	0.31	5.0	0	--	--
Minnesota	0	--	--	11,460	0.34	6.0	0	--	--
Missouri	487	2.79	9.1	30,610	0.24	4.8	0	--	--
Nebraska	0	--	--	13,430	0.26	4.9	0	--	--
North Dakota	0	--	--	0	--	--	21,882	0.76	9.8
South Dakota	0	--	--	1,778	0.34	5.5	0	--	--
South Atlantic	66,998	2.36	9.6	9,047	0.32	4.7	0	--	--
Delaware	71	2.63	7.6	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	9,218	2.41	8.3	0	--	--	0	--	--
Georgia	6,305	2.51	8.2	9,047	0.32	4.7	0	--	--
Maryland	2,881	2.36	10.9	0	--	--	0	--	--
North Carolina	12,803	1.74	9.7	0	--	--	0	--	--
South Carolina	7,317	1.85	9.2	0	--	--	0	--	--
Virginia	2,617	1.02	15.5	0	--	--	0	--	--
West Virginia	25,784	2.87	9.9	0	--	--	0	--	--
East South Central	33,046	2.57	9.2	19,965	0.29	5.3	2,561	0.51	13.6
Alabama	4,270	0.99	10.7	10,838	0.31	5.3	0	--	--
Kentucky	22,900	2.93	9.2	7,087	0.25	5.2	0	--	--
Mississippi	379	0.43	8.0	1,184	0.32	5.2	2,561	0.51	13.6
Tennessee	5,498	2.34	8.3	856	0.27	5.2	0	--	--
West South Central	444	2.37	11.5	68,772	0.27	5.0	21,873	1.09	17.0
Arkansas	61	0.45	9.2	14,038	0.22	4.9	0	--	--
Louisiana	334	2.92	9.3	4,308	0.28	5.0	1,200	0.60	15.8
Oklahoma	50	0.95	34.4	4,784	0.22	4.6	0	--	--
Texas	0	--	--	45,642	0.29	5.1	20,673	1.12	17.1
Mountain	19,875	0.59	12.9	60,052	0.52	8.8	256	0.53	9.0
Arizona	4,025	0.51	10.3	9,371	0.66	10.3	0	--	--
Colorado	1,236	0.46	11.1	12,699	0.32	5.6	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	8,661	0.69	10.0	256	0.53	9.0
Nevada	646	0.41	11.0	1,051	0.38	7.0	0	--	--
New Mexico	3,128	0.87	23.8	5,367	0.84	20.4	0	--	--
Utah	10,839	0.57	11.4	240	0.91	9.0	0	--	--
Wyoming	0	--	--	22,663	0.43	6.9	0	--	--
Pacific Contiguous	555	0.45	9.4	6,394	0.35	7.6	0	--	--
California	555	0.45	9.4	0	--	--	0	--	--
Oregon	0	--	--	1,599	0.24	5.0	0	--	--
Washington	0	--	--	4,795	0.39	8.4	0	--	--
Pacific Noncontiguous	18	0.56	11.2	665	0.23	4.0	209	0.15	9.2
Alaska	0	--	--	0	--	--	209	0.15	9.2
Hawaii	18	0.56	11.2	665	0.23	4.0	0	--	--
U.S. Total	198,016	2.52	10.0	309,029	0.32	5.7	46,781	0.90	13.3

Displayed values of zero may represent small values that round to zero.
 NM = Not meaningful due to large relative standard error or excessive percentage change.
 W = Withheld to avoid disclosure of individual company data.

Notes:
 Bituminous coal includes anthracite coal and coal-derived synthesis gas.
 See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.22. Receipts and Quality of Coal by Rank Delivered for Electricity Generation: Electric Utilities by State, 2019

Census Division and State	Bituminous			Subbituminous			Lignite		
	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight
New England	90	1.84	7.0	0	--	--	0	--	--
Connecticut	0	--	--	0	--	--	0	--	--
Maine	0	--	--	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	90	1.84	7.0	0	--	--	0	--	--
Rhode Island	0	--	--	0	--	--	0	--	--
Vermont	0	--	--	0	--	--	0	--	--
Middle Atlantic	0	--	--	0	--	--	0	--	--
New Jersey	0	--	--	0	--	--	0	--	--
New York	0	--	--	0	--	--	0	--	--
Pennsylvania	0	--	--	0	--	--	0	--	--
East North Central	30,966	2.85	8.9	40,000	0.25	4.7	0	--	--
Illinois	2,404	2.53	9.4	4,301	0.21	4.5	0	--	--
Indiana	23,872	2.82	9.0	2,313	0.22	4.5	0	--	--
Michigan	1,580	2.48	7.7	19,385	0.26	4.7	0	--	--
Ohio	2,598	3.66	9.0	8	0.21	4.5	0	--	--
Wisconsin	512	2.65	7.8	13,993	0.24	4.8	0	--	--
West North Central	607	2.92	9.9	81,426	0.27	5.0	21,882	0.76	9.8
Iowa	0	--	--	13,745	0.25	4.8	0	--	--
Kansas	128	3.43	12.8	11,163	0.31	5.0	0	--	--
Minnesota	0	--	--	11,460	0.34	6.0	0	--	--
Missouri	479	2.79	9.1	30,610	0.24	4.8	0	--	--
Nebraska	0	--	--	12,669	0.26	5.0	0	--	--
North Dakota	0	--	--	0	--	--	21,882	0.76	9.8
South Dakota	0	--	--	1,778	0.34	5.5	0	--	--
South Atlantic	58,898	2.36	9.7	9,047	0.32	4.7	0	--	--
Delaware	0	--	--	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	9,166	2.43	8.3	0	--	--	0	--	--
Georgia	6,170	2.55	8.1	9,047	0.32	4.7	0	--	--
Maryland	0	--	--	0	--	--	0	--	--
North Carolina	12,535	1.76	9.8	0	--	--	0	--	--
South Carolina	7,099	1.87	9.2	0	--	--	0	--	--
Virginia	2,071	1.09	18.1	0	--	--	0	--	--
West Virginia	21,857	2.87	10.1	0	--	--	0	--	--
East South Central	32,456	2.60	9.2	19,965	0.29	5.3	0	--	--
Alabama	4,270	0.99	10.7	10,838	0.31	5.3	0	--	--
Kentucky	22,900	2.93	9.2	7,087	0.25	5.2	0	--	--
Mississippi	379	0.43	8.0	1,184	0.32	5.2	0	--	--
Tennessee	4,908	2.52	8.5	856	0.27	5.2	0	--	--
West South Central	384	2.71	12.0	39,102	0.25	4.9	6,775	1.59	20.4
Arkansas	0	--	--	11,854	0.23	4.8	0	--	--
Louisiana	334	2.92	9.3	2,921	0.26	5.0	1,200	0.60	15.8
Oklahoma	50	0.95	34.4	4,615	0.22	4.6	0	--	--
Texas	0	--	--	19,711	0.27	5.1	5,575	1.84	21.6
Mountain	19,875	0.59	12.9	50,262	0.49	8.7	256	0.53	9.0
Arizona	4,025	0.51	10.3	9,371	0.66	10.3	0	--	--
Colorado	1,236	0.46	11.1	12,699	0.32	5.6	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	0	--	--	256	0.53	9.0
Nevada	646	0.41	11.0	447	0.45	9.0	0	--	--
New Mexico	3,128	0.87	23.8	5,367	0.84	20.4	0	--	--
Utah	10,839	0.57	11.4	240	0.91	9.0	0	--	--
Wyoming	0	--	--	22,138	0.43	6.9	0	--	--
Pacific Contiguous	0	--	--	1,599	0.24	5.0	0	--	--
California	0	--	--	0	--	--	0	--	--
Oregon	0	--	--	1,599	0.24	5.0	0	--	--
Washington	0	--	--	0	--	--	0	--	--
Pacific Noncontiguous	0	--	--	0	--	--	209	0.15	9.2
Alaska	0	--	--	0	--	--	209	0.15	9.2
Hawaii	0	--	--	0	--	--	0	--	--
U.S. Total	143,275	2.29	9.8	241,401	0.31	5.7	29,122	0.93	12.1

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 W = Withheld to avoid disclosure of individual company data.

Notes:
 Bituminous coal includes anthracite coal and coal-derived synthesis gas.
 See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.23. Receipts and Quality of Coal by Rank Delivered for Electricity Generation: Independent Power Producers by State, 2019

Census Division and State	Bituminous			Subbituminous			Lignite		
	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight
New England	69	0.77	7.9	0	--	--	0	--	--
Connecticut	0	--	--	0	--	--	0	--	--
Maine	69	0.77	7.9	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	0	--	--	0	--	--	0	--	--
Rhode Island	0	--	--	0	--	--	0	--	--
Vermont	0	--	--	0	--	--	0	--	--
Middle Atlantic	14,803	2.72	9.2	0	--	--	0	--	--
New Jersey	562	1.73	7.7	0	--	--	0	--	--
New York	105	2.85	8.4	0	--	--	0	--	--
Pennsylvania	14,136	2.76	9.3	0	--	--	0	--	--
East North Central	28,808	3.62	11.9	19,491	0.21	4.6	0	--	--
Illinois	6,413	3.64	26.2	19,432	0.21	4.6	0	--	--
Indiana	2,091	3.33	9.1	0	--	--	0	--	--
Michigan	247	1.16	6.4	0	--	--	0	--	--
Ohio	20,057	3.67	9.1	60	0.30	5.2	0	--	--
Wisconsin	0	--	--	0	--	--	0	--	--
West North Central	0	--	--	0	--	--	0	--	--
Iowa	0	--	--	0	--	--	0	--	--
Kansas	0	--	--	0	--	--	0	--	--
Minnesota	0	--	--	0	--	--	0	--	--
Missouri	0	--	--	0	--	--	0	--	--
Nebraska	0	--	--	0	--	--	0	--	--
North Dakota	0	--	--	0	--	--	0	--	--
South Dakota	0	--	--	0	--	--	0	--	--
South Atlantic	7,331	2.55	9.3	0	--	--	0	--	--
Delaware	71	2.63	7.6	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	0	--	--	0	--	--	0	--	--
Georgia	0	--	--	0	--	--	0	--	--
Maryland	2,788	2.37	10.6	0	--	--	0	--	--
North Carolina	55	0.70	6.2	0	--	--	0	--	--
South Carolina	198	1.19	9.2	0	--	--	0	--	--
Virginia	292	0.84	7.6	0	--	--	0	--	--
West Virginia	3,927	2.90	8.5	0	--	--	0	--	--
East South Central	0	--	--	0	--	--	2,561	0.51	13.6
Alabama	0	--	--	0	--	--	0	--	--
Kentucky	0	--	--	0	--	--	0	--	--
Mississippi	0	--	--	0	--	--	2,561	0.51	13.6
Tennessee	0	--	--	0	--	--	0	--	--
West South Central	0	--	--	29,502	0.29	5.1	15,098	0.89	15.6
Arkansas	0	--	--	2,184	0.22	5.0	0	--	--
Louisiana	0	--	--	1,387	0.30	4.9	0	--	--
Oklahoma	0	--	--	0	--	--	0	--	--
Texas	0	--	--	25,931	0.30	5.1	15,098	0.89	15.6
Mountain	0	--	--	9,790	0.65	9.5	0	--	--
Arizona	0	--	--	0	--	--	0	--	--
Colorado	0	--	--	0	--	--	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	8,661	0.69	10.0	0	--	--
Nevada	0	--	--	604	0.33	5.3	0	--	--
New Mexico	0	--	--	0	--	--	0	--	--
Utah	0	--	--	0	--	--	0	--	--
Wyoming	0	--	--	525	0.44	5.5	0	--	--
Pacific Contiguous	0	--	--	4,795	0.39	8.4	0	--	--
California	0	--	--	0	--	--	0	--	--
Oregon	0	--	--	0	--	--	0	--	--
Washington	0	--	--	4,795	0.39	8.4	0	--	--
Pacific Noncontiguous	18	0.56	11.2	665	0.23	4.0	0	--	--
Alaska	0	--	--	0	--	--	0	--	--
Hawaii	18	0.56	11.2	665	0.23	4.0	0	--	--
U.S. Total	51,029	3.18	10.7	64,244	0.33	5.8	17,659	0.85	15.4

Displayed values of zero may represent small values that round to zero.
 NM = Not meaningful due to large relative standard error or excessive percentage change.
 W = Withheld to avoid disclosure of individual company data.

Notes:
 Bituminous coal includes anthracite coal and coal-derived synthesis gas.
 See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.24. Receipts and Quality of Coal by Rank Delivered for Electricity Generation: Commercial Sector by State, 2019

Census Division and State	Bituminous			Subbituminous			Lignite		
	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight
New England	0	--	--	0	--	--	0	--	--
Connecticut	0	--	--	0	--	--	0	--	--
Maine	0	--	--	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	0	--	--	0	--	--	0	--	--
Rhode Island	0	--	--	0	--	--	0	--	--
Vermont	0	--	--	0	--	--	0	--	--
Middle Atlantic	0	--	--	0	--	--	0	--	--
New Jersey	0	--	--	0	--	--	0	--	--
New York	0	--	--	0	--	--	0	--	--
Pennsylvania	0	--	--	0	--	--	0	--	--
East North Central	0	--	--	0	--	--	0	--	--
Illinois	0	--	--	0	--	--	0	--	--
Indiana	0	--	--	0	--	--	0	--	--
Michigan	0	--	--	0	--	--	0	--	--
Ohio	0	--	--	0	--	--	0	--	--
Wisconsin	0	--	--	0	--	--	0	--	--
West North Central	8	3.01	8.2	0	--	--	0	--	--
Iowa	0	--	--	0	--	--	0	--	--
Kansas	0	--	--	0	--	--	0	--	--
Minnesota	0	--	--	0	--	--	0	--	--
Missouri	8	3.01	8.2	0	--	--	0	--	--
Nebraska	0	--	--	0	--	--	0	--	--
North Dakota	0	--	--	0	--	--	0	--	--
South Dakota	0	--	--	0	--	--	0	--	--
South Atlantic	0	--	--	0	--	--	0	--	--
Delaware	0	--	--	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	0	--	--	0	--	--	0	--	--
Georgia	0	--	--	0	--	--	0	--	--
Maryland	0	--	--	0	--	--	0	--	--
North Carolina	0	--	--	0	--	--	0	--	--
South Carolina	0	--	--	0	--	--	0	--	--
Virginia	0	--	--	0	--	--	0	--	--
West Virginia	0	--	--	0	--	--	0	--	--
East South Central	0	--	--	0	--	--	0	--	--
Alabama	0	--	--	0	--	--	0	--	--
Kentucky	0	--	--	0	--	--	0	--	--
Mississippi	0	--	--	0	--	--	0	--	--
Tennessee	0	--	--	0	--	--	0	--	--
West South Central	0	--	--	0	--	--	0	--	--
Arkansas	0	--	--	0	--	--	0	--	--
Louisiana	0	--	--	0	--	--	0	--	--
Oklahoma	0	--	--	0	--	--	0	--	--
Texas	0	--	--	0	--	--	0	--	--
Mountain	0	--	--	0	--	--	0	--	--
Arizona	0	--	--	0	--	--	0	--	--
Colorado	0	--	--	0	--	--	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	0	--	--	0	--	--
Nevada	0	--	--	0	--	--	0	--	--
New Mexico	0	--	--	0	--	--	0	--	--
Utah	0	--	--	0	--	--	0	--	--
Wyoming	0	--	--	0	--	--	0	--	--
Pacific Contiguous	0	--	--	0	--	--	0	--	--
California	0	--	--	0	--	--	0	--	--
Oregon	0	--	--	0	--	--	0	--	--
Washington	0	--	--	0	--	--	0	--	--
Pacific Noncontiguous	0	--	--	0	--	--	0	--	--
Alaska	0	--	--	0	--	--	0	--	--
Hawaii	0	--	--	0	--	--	0	--	--
U.S. Total	8	3.01	8.2	0	--	--	0	--	--

Displayed values of zero may represent small values that round to zero.
 NM = Not meaningful due to large relative standard error or excessive percentage change.
 W = Withheld to avoid disclosure of individual company data.

Notes:
 Bituminous coal includes anthracite coal and coal-derived synthesis gas.
 See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Table 7.25. Receipts and Quality of Coal by Rank Delivered for Electricity Generation: Industrial Sector by State, 2019

Census Division and State	Bituminous			Subbituminous			Lignite		
	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	Average Ash Percent by Weight
New England	0	--	--	0	--	--	0	--	--
Connecticut	0	--	--	0	--	--	0	--	--
Maine	0	--	--	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	0	--	--	0	--	--	0	--	--
Rhode Island	0	--	--	0	--	--	0	--	--
Vermont	0	--	--	0	--	--	0	--	--
Middle Atlantic	76	2.28	8.1	0	--	--	0	--	--
New Jersey	0	--	--	0	--	--	0	--	--
New York	0	--	--	0	--	--	0	--	--
Pennsylvania	76	2.28	8.1	0	--	--	0	--	--
East North Central	1,208	3.31	8.8	658	0.25	5.5	0	--	--
Illinois	1,124	3.53	8.7	658	0.25	5.5	0	--	--
Indiana	0	--	--	0	--	--	0	--	--
Michigan	2	0.59	7.8	0	--	--	0	--	--
Ohio	0	--	--	0	--	--	0	--	--
Wisconsin	82	0.50	10.6	0	--	--	0	--	--
West North Central	445	3.20	8.3	2,559	0.21	4.4	0	--	--
Iowa	445	3.20	8.3	1,797	0.20	4.5	0	--	--
Kansas	0	--	--	0	--	--	0	--	--
Minnesota	0	--	--	0	--	--	0	--	--
Missouri	0	--	--	0	--	--	0	--	--
Nebraska	0	--	--	761	0.21	4.4	0	--	--
North Dakota	0	--	--	0	--	--	0	--	--
South Dakota	0	--	--	0	--	--	0	--	--
South Atlantic	768	0.89	9.1	0	--	--	0	--	--
Delaware	0	--	--	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	53	0.71	6.8	0	--	--	0	--	--
Georgia	136	0.92	11.4	0	--	--	0	--	--
Maryland	92	1.73	21.9	0	--	--	0	--	--
North Carolina	213	0.81	6.7	0	--	--	0	--	--
South Carolina	19	0.69	6.7	0	--	--	0	--	--
Virginia	255	0.74	7.1	0	--	--	0	--	--
West Virginia	0	--	--	0	--	--	0	--	--
East South Central	590	1.00	7.3	0	--	--	0	--	--
Alabama	0	--	--	0	--	--	0	--	--
Kentucky	0	--	--	0	--	--	0	--	--
Mississippi	0	--	--	0	--	--	0	--	--
Tennessee	590	1.00	7.3	0	--	--	0	--	--
West South Central	61	0.45	9.2	169	0.20	4.6	0	--	--
Arkansas	61	0.45	9.2	0	--	--	0	--	--
Louisiana	0	--	--	0	--	--	0	--	--
Oklahoma	0	--	--	169	0.20	4.6	0	--	--
Texas	0	--	--	0	--	--	0	--	--
Mountain	0	--	--	0	--	--	0	--	--
Arizona	0	--	--	0	--	--	0	--	--
Colorado	0	--	--	0	--	--	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	0	--	--	0	--	--
Nevada	0	--	--	0	--	--	0	--	--
New Mexico	0	--	--	0	--	--	0	--	--
Utah	0	--	--	0	--	--	0	--	--
Wyoming	0	--	--	0	--	--	0	--	--
Pacific Contiguous	555	0.45	9.4	0	--	--	0	--	--
California	555	0.45	9.4	0	--	--	0	--	--
Oregon	0	--	--	0	--	--	0	--	--
Washington	0	--	--	0	--	--	0	--	--
Pacific Noncontiguous	0	--	--	0	--	--	0	--	--
Alaska	0	--	--	0	--	--	0	--	--
Hawaii	0	--	--	0	--	--	0	--	--
U.S. Total	3,703	1.86	8.6	3,385	0.21	4.7	0	--	--

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 W = Withheld to avoid disclosure of individual company data.

Notes:
 Bituminous coal includes anthracite coal and coal-derived synthesis gas.
 See Glossary for definitions. Values are final. See Technical Notes for a discussion of the sample design for the Form EIA-923.

Source: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report."

Chapter 8

Electric Power System Characteristics and Performance

**Table 8.1. Average Operating Heat Rate for Selected Energy Sources,
2009 through 2019 (Btu per Kilowatthour)**

Year	Coal	Petroleum	Natural Gas	Nuclear
2009	10,414	10,923	8,160	10,459
2010	10,415	10,984	8,185	10,452
2011	10,444	10,829	8,152	10,464
2012	10,498	10,991	8,039	10,479
2013	10,459	10,713	7,948	10,449
2014	10,428	10,814	7,907	10,459
2015	10,495	10,687	7,878	10,458
2016	10,493	10,811	7,870	10,459
2017	10,465	10,834	7,812	10,459
2018	10,481	11,095	7,821	10,455
2019	10,551	11,135	7,732	10,442

Coal includes anthracite, bituminous, subbituminous and lignite coal. Waste coal and synthetic coal are included starting in 2002.

Petroleum includes distillate fuel oil (all diesel and No. 1 and No. 2 fuel oils), residual fuel oil (No. 5 and No. 6 fuel oils and bunker C fuel oil, jet fuel, kerosene, petroleum coke, and waste oil.

Notes:

Included in the calculation for coal, petroleum, and natural gas average operating heat rate are electric power plants in the utility and independent power producer sectors.

Combined heat and power plants, and all plants in the commercial and industrial sectors are excluded from the calculations.

The nuclear average heat rate is the weighted average tested heat rate for nuclear units as reported on the Form EIA-860.

Sources: U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report," and predecessor form(s) including U.S. Energy Information Administration, Form EIA-906, "Power Plant Report;" and Form EIA-920, "Combined Heat and Power Plant Report;" Form EIA-860, "Annual Electric Generator Report."

Table 8.2. Average Tested Heat Rates by Prime Mover and Energy Source, 2009 - 2019

(Btu per Kilowatthour)

Prime Mover	Coal	Petroleum	Natural Gas	Nuclear
2009				
Steam Generator	10,150	10,349	10,427	10,459
Gas Turbine	--	13,326	11,560	--
Internal Combustion	--	10,428	9,958	--
Combined Cycle	W	10,715	7,605	--
2010				
Steam Generator	10,142	10,249	10,416	10,452
Gas Turbine	--	13,386	11,590	--
Internal Combustion	--	10,429	9,917	--
Combined Cycle	W	10,474	7,619	--
2011				
Steam Generator	10,128	10,414	10,414	10,464
Gas Turbine	--	13,637	11,569	--
Internal Combustion	--	10,428	9,923	--
Combined Cycle	W	10,650	7,603	--
2012				
Steam Generator	10,107	10,359	10,385	10,479
Gas Turbine	--	13,622	11,499	--
Internal Combustion	--	10,416	9,991	--
Combined Cycle	W	10,195	7,615	--
2013				
Steam Generator	10,089	10,334	10,354	10,449
Gas Turbine	--	13,555	11,371	--
Internal Combustion	--	10,401	9,573	--
Combined Cycle	W	9,937	7,667	--
2014				
Steam Generator	10,080	10,156	10,408	10,459
Gas Turbine	--	13,457	11,378	--
Internal Combustion	--	10,403	9,375	--
Combined Cycle	W	9,924	7,658	--
2015				
Steam Generator	10,059	10,197	10,372	10,458
Gas Turbine	--	13,550	11,302	--
Internal Combustion	--	10,379	9,322	--
Combined Cycle	W	9,676	7,655	--
2016				
Steam Generator	10,045	10,189	10,382	10,459
Gas Turbine	--	13,535	11,214	--
Internal Combustion	--	10,331	9,179	--
Combined Cycle	W	9,860	7,652	--
2017				
Steam Generator	10,043	10,199	10,353	10,459
Gas Turbine	--	13,491	11,176	--
Internal Combustion	--	10,301	9,120	--
Combined Cycle	W	9,811	7,649	--
2018				
Steam Generator	10,015	10,270	10,334	10,455
Gas Turbine	--	13,352	11,138	--
Internal Combustion	--	10,326	9,009	--
Combined Cycle	W	9,663	7,627	--
2019				
Steam Generator	10,002	10,236	10,347	10,442
Gas Turbine	--	13,315	11,098	--
Internal Combustion	--	10,325	8,899	--
Combined Cycle	W	9,662	7,633	--

Notes: W = Withheld to avoid disclosure of individual company data.

Heat rate is reported at full load conditions for electric utilities and independent power producers.

The average heat rates above are weighted by Net Summer Capacity.

Coal Combined Cycle represents integrated gasification units.

Source: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report.'

Table 8.3. Revenue and Expense Statistics for Major U.S. Investor-Owned Electric Utilities, 2009 through 2019 (Million Dollars)

Description	2009	2010	2011	2012	2013	2014
Utility Operating Revenues	276,124	285,512	280,520	270,912	281,901	298,430
.....Electric Utility	249,303	260,119	255,573	249,166	257,718	271,832
.....Other Utility	26,822	25,393	24,946	21,745	24,183	26,598
Utility Operating Expenses	244,243	253,022	247,118	235,694	244,316	258,936
.....Electric Utility	219,544	234,173	228,873	220,722	227,483	240,643
.....Operation	154,925	166,922	161,460	152,379	156,077	165,989
.....Production	118,816	128,831	122,520	111,714	115,046	123,366
.....Cost of Fuel	40,242	44,138	42,779	38,998	41,127	42,545
.....Purchased Power	67,630	67,284	61,447	54,570	55,529	62,066
.....Other	10,970	17,409	18,294	18,146	18,390	18,755
.....Transmission	6,742	6,948	6,876	7,183	7,881	8,902
.....Distribution	3,947	4,007	4,044	4,181	4,197	4,331
.....Customer Accounts	5,203	5,091	5,180	5,086	5,107	5,255
.....Customer Service	3,857	4,741	5,311	5,640	5,906	6,396
.....Sales	178	185	185	221	203	208
.....Administrative and General	15,991	17,120	17,343	18,353	17,738	17,532
.....Maintenance	14,092	14,957	15,772	15,489	15,505	16,801
.....Depreciation	20,095	20,951	22,555	23,677	24,723	25,919
.....Taxes and Other	29,081	31,343	29,086	29,177	31,179	31,934
.....Other Utility	24,698	18,849	18,245	14,972	16,833	18,293
Net Utility Operating Income	31,881	32,490	33,402	35,218	37,585	39,494

Description	2015	2016	2017	2018	2019
Utility Operating Revenues	282,695	282,499	286,501	293,868	293,000
.....Electric Utility	260,121	261,047	263,265	268,421	266,876
.....Other Utility	22,574	21,451	23,235	25,447	26,124
Utility Operating Expenses	242,728	239,037	240,041	253,944	250,136
.....Electric Utility	228,366	226,457	226,110	238,526	234,892
.....Operation	149,939	145,077	142,000	163,479	157,265
.....Production	107,201	100,852	98,859	104,185	99,518
.....Cost of Fuel	34,711	32,621	32,165	33,592	29,614
.....Purchased Power	52,970	49,962	49,030	53,060	50,378
.....Other	19,521	18,269	17,664	17,533	19,526
.....Transmission	9,624	10,447	10,804	11,387	11,941
.....Distribution	4,406	4,734	4,358	4,806	5,218
.....Customer Accounts	5,184	5,077	4,789	4,969	4,978
.....Customer Service	6,445	6,187	5,961	6,019	6,156
.....Sales	201	205	213	203	204
.....Administrative and General	16,878	17,575	17,016	31,911	29,248
.....Maintenance	16,392	16,982	17,996	17,786	19,898
.....Depreciation	26,847	30,097	30,323	32,125	34,883
.....Taxes and Other	35,188	34,301	35,791	25,136	22,846
.....Other Utility	14,362	12,579	13,931	15,418	15,245
Net Utility Operating Income	39,968	43,462	46,460	39,924	42,864

Notes: Missing or erroneous respondent data may result in slight imbalances in some of the expense account subtotals.

Total may not equal sum of components due to independent rounding.

Sources: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees and Others via Ventyx Global Energy Velocity Suite.

Table 8.4. Average Power Plant Operating Expenses for Major U.S. Investor-Owned

Electric Utilities, 2009 through 2019 (Mills per Kilowatthour)

Year	Operation				Maintenance			
	Nuclear	Fossil Steam	Hydro-electric	Gas Turbine and Small Scale	Nuclear	Fossil Steam	Hydro-electric	Gas Turbine and Small Scale
2009	10.00	4.23	4.88	3.05	6.34	3.96	3.50	2.58
2010	10.50	4.04	5.33	2.79	6.80	3.99	3.81	2.73
2011	10.89	4.02	5.13	2.81	6.80	3.99	3.74	2.93
2012	12.49	4.38	6.71	2.46	7.32	4.48	4.63	2.76
2013	12.51	4.57	6.56	2.56	6.64	4.41	4.32	2.80
2014	12.41	4.55	7.30	2.63	6.67	5.11	4.59	2.90
2015	11.17	5.16	8.37	2.34	7.06	5.41	5.06	2.68
2016	10.90	5.05	6.65	2.49	7.01	5.53	4.34	2.74
2017	10.27	5.01	6.33	2.45	6.63	5.13	3.96	2.83
2018	10.78	5.19	6.69	2.37	5.93	5.27	3.96	2.71
2019	10.63	5.52	6.86	2.58	6.29	6.85	3.94	2.64

Year	Fuel				Total			
	Nuclear	Fossil Steam	Hydro-electric	Gas Turbine and Small Scale	Nuclear	Fossil Steam	Hydro-electric	Gas Turbine and Small Scale
2009	5.35	32.30	--	51.93	21.69	40.48	8.38	57.55
2010	6.68	27.73	--	43.21	23.98	35.76	9.15	48.74
2011	7.01	27.08	--	38.80	24.70	35.09	8.88	44.54
2012	7.61	28.34	--	30.45	27.42	37.20	11.34	35.67
2013	8.14	28.94	--	32.56	27.29	37.92	10.88	37.92
2014	7.71	29.39	--	37.06	26.79	39.04	11.90	42.60
2015	7.48	26.70	--	28.22	25.71	37.26	13.42	33.24
2016	7.45	25.50	--	24.97	25.36	36.08	10.98	30.19
2017	7.47	25.27	--	26.48	24.38	35.41	10.29	31.76
2018	7.15	25.40	--	27.35	23.86	35.86	10.65	32.43
2019	6.81	24.28	--	23.11	23.73	36.66	10.80	28.33

Hydroelectric category consists of both conventional hydroelectric and pumped storage.

Gas Turbine and Small Scale category consists of gas turbine, internal combustion, photovoltaic, and wind plants.

Notes: Expenses are average expenses weighted by net generation. A mill is a monetary cost and billing unit equal to 1/1000 of the U.S. dollar (equivalent to 1/10 of one cent).

Total may not equal sum of components due to independent rounding.

Sources: Federal Energy Regulatory Commission, FERC Form 1, "Annual Report of Major Electric Utilities, Licensees and Others via Ventyx Global Energy Velocity Suite.

Chapter 9

Environmental Data

Table 9.1. Emissions from Energy Consumption at Conventional Power Plants and Combined-Heat-and-Power Plants 2009 through 2019 (Thousand Metric Tons)

Year	Carbon Dioxide (CO ₂)	Sulfur Dioxide (SO ₂)	Nitrogen Oxides (NO _x)
2009	2,269,508	5,970	2,395
2010	2,388,596	5,400	2,491
2011	2,287,071	4,845	2,406
2012	2,156,875	3,704	2,148
2013	2,173,806	3,609	2,163
2014	2,168,284	3,454	2,100
2015	2,031,452	2,548	1,824
2016	1,928,401	1,807	1,630
2017	1,849,750	1,657	1,506
2018	1,874,346	1,571	1,485
2019	1,724,396	1,267	1,342

Notes:

The emissions data presented include total emissions from both electricity generation and the production of useful thermal output.

See Appendix A, Technical Notes, for a description of the sources and methodology used to develop the emissions estimates.

Source: Calculations made by the Office of Electricity, Renewables, and Uranium Statistics, U.S. Energy Information Administration.

Table 9.2. Quantity and Net Summer Capacity of Operable Environmental Equipment, 2009 - 2019

Year	Flue Gas Desulfurization Systems		Electrostatic Precipitators		Baghouses		Select Catalytic and Non-Catalytic Reduction Systems		Activated Carbon Injection Systems		Direct Sorbent Injection Systems	
	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)
2009	678	174,801	1,456	314,356	597	73,863	1,323	300,007	227	39,546	65	8,242
2010	717	201,079	1,410	310,486	610	83,407	1,360	315,222	262	54,183	66	8,721
2011	731	211,781	1,368	307,043	633	98,507	1,408	331,242	274	59,057	75	8,977
2012	727	219,359	1,291	298,425	629	101,593	1,453	345,257	287	63,709	83	10,618
2013	705	219,359	1,218	289,182	637	104,331	1,458	351,233	262	61,215	97	12,985
2014	702	223,835	1,172	283,940	621	105,990	1,472	358,426	280	69,287	104	16,777
2015	693	224,143	1,037	264,905	623	110,820	1,480	359,885	364	106,450	122	23,307
2016	696	228,504	943	252,904	613	112,581	1,484	362,522	482	153,800	125	26,679
2017	681	222,513	886	244,087	601	109,495	1,492	365,878	477	151,208	126	25,762
2018	662	214,082	840	229,403	582	105,282	1,484	364,743	455	143,471	119	26,261
2019	617	203,035	781	217,328	535	101,839	1,455	361,767	431	136,597	114	25,461

Note:

'Associated Net Summer Capacity' is defined as the net summer capacity of the generators that are associated with the operation of this environmental equipment.

In some cases respondents have reported equipment late. Counts and capacity may have changed from prior publications of this table because of late reporting.

Data for 2005 and earlier are based primarily on Form EIA-767 data. In 2006, the Form EIA-767 was suspended. Data for 2007 and later are based primarily on Form EIA-860 data. All data for 2006 are inferred based on submissions from subsequent years. Beginning in 2013 environmental data was collected at a more detailed level, which increases its accuracy and in some cases reduces the equipment counts.

Source: U.S. Energy Information Administration, Forms EIA-767, "Steam-Electric Plant Operation and Design Report" and Form EIA-860, "Annual Electric Generator Report."

Table 9.3. Quantity and Net Summer Capacity of Operable Cooling Systems, by Energy Source and Cooling System Type, 2009 - 2019

Energy Source	Once-Through Cooling Systems		Recirculating Cooling Systems		Cooling Ponds		Dry Cooling Systems		Hybrid Wet and Dry Cooling Systems		Other Cooling System Types	
	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)	Quantity	Associated Net Summer Capacity (MW)
2009												
Coal	445	129,350	370	161,312	100	47,960	1	335	--	--	8	3,036
Natural Gas	192	48,737	431	83,932	58	23,062	51	12,338	3	482	3	1,175
Petroleum	81	22,111	18	6,575	3	4,104	--	--	--	--	2	2,022
Other	16	1,160	25	2,316	2	344	4	356	--	--	1	33
2010												
Coal	437	129,554	371	162,953	101	48,929	2	435	1	766	9	3,086
Natural Gas	180	48,398	427	83,120	58	22,786	54	13,078	3	542	3	1,172
Nuclear	49	51,465	39	43,363	13	14,996	--	--	--	--	7	7,901
Petroleum	80	21,232	17	5,513	3	4,064	--	--	--	--	2	2,022
Other	17	1,190	26	2,546	2	344	4	356	--	--	2	63
2011												
Coal	415	127,412	369	165,958	104	50,476	3	840	1	766	9	3,090
Natural Gas	176	48,361	442	87,168	59	21,984	57	13,471	3	542	2	870
Nuclear	49	51,642	39	43,422	13	15,011	--	--	--	--	8	8,890
Petroleum	70	17,454	17	5,443	4	4,692	--	--	--	--	2	2,022
Other	18	1,318	20	1,641	--	--	1	26	--	--	2	63
2012												
Coal	372	124,589	366	166,915	88	39,933	4	1,412	1	766	15	6,918
Natural Gas	172	52,020	448	92,518	55	18,573	59	13,813	4	637	2	499
Nuclear	49	51,846	38	39,561	13	15,105	--	--	--	--	8	8,900
Petroleum	63	15,326	17	4,046	4	4,692	--	--	--	--	2	2,022
Other	15	1,258	27	2,167	--	--	1	53	--	--	2	63
2013												
Coal	345	120,340	357	164,826	77	39,482	4	1,422	1	750	11	4,797
Natural Gas	159	51,291	428	88,707	58	18,883	58	12,828	4	637	4	2,481
Nuclear	45	50,266	38	40,013	13	15,251	--	--	--	--	8	11,181
Petroleum	49	11,910	11	3,481	4	4,692	--	--	--	--	--	--
Solar Thermal	--	--	2	591	--	--	4	516	--	--	--	--
Other	15	1,301	31	2,561	1	66	--	--	--	--	1	128
2014												
Coal	328	115,930	340	160,534	74	38,906	4	1,422	1	750	22	8,322
Natural Gas	161	50,985	420	84,984	56	20,294	58	11,878	4	637	3	2,419
Nuclear	44	49,586	35	37,650	13	15,237	--	--	--	--	9	11,886
Petroleum	40	10,043	11	3,473	4	4,691	--	--	--	--	--	--
Solar Thermal	--	--	4	841	--	--	5	900	--	--	--	--
Other	16	1,332	31	2,756	1	66	1	72	--	--	1	128
2015												
Coal	259	93,180	313	153,917	77	45,026	4	1,422	1	750	25	9,883
Natural Gas	160	49,219	437	88,982	59	22,351	59	12,038	3	475	3	2,410
Nuclear	43	47,268	35	37,610	14	17,663	--	--	--	--	9	12,062
Petroleum	27	8,254	9	2,308	4	4,299	--	--	--	--	--	--
Solar Thermal	--	--	4	866	--	--	5	900	1	110	--	--
Other	18	1,676	26	2,104	1	66	1	72	--	--	1	128
2016												
Coal	210	82,047	294	149,187	79	44,702	4	1,422	1	750	22	10,148
Natural Gas	168	49,664	440	88,509	58	21,970	64	14,128	3	475	3	2,359
Nuclear	42	47,029	35	38,745	14	17,660	--	--	--	--	9	13,298
Petroleum	25	7,771	8	2,222	3	3,904	--	--	--	--	--	--
Solar Thermal	--	--	4	866	--	--	5	900	1	110	--	--
Other	18	1,689	24	2,035	1	66	1	72	--	--	1	128
2017												
Coal	197	76,492	281	142,578	75	44,341	4	1,422	1	750	19	9,581
Natural Gas	172	50,053	439	91,217	59	21,677	66	15,271	4	801	6	3,772
Nuclear	42	47,013	35	38,784	14	17,700	--	--	--	--	9	13,298
Petroleum	26	8,174	8	1,844	4	3,965	--	--	--	--	--	--
Solar Thermal	--	--	4	866	--	--	5	900	1	110	--	--
Other	17	1,582	26	2,464	2	97	2	245	--	--	1	128
2018												
Coal	180	70,659	273	138,632	67	39,593	4	1,422	1	750	16	8,089
Natural Gas	161	47,653	445	92,897	59	21,549	77	18,613	4	801	7	4,478
Nuclear	41	46,723	35	38,805	14	17,759	--	--	--	--	9	13,608
Petroleum	27	8,575	8	1,844	3	2,304	--	--	--	--	--	--
Solar Thermal	--	--	4	866	--	--	5	900	1	110	--	--
Other	17	1,931	25	2,161	1	31	1	72	--	--	1	128
2019												
Coal	163	67,142	246	129,998	63	37,807	4	1,432	1	750	14	7,629
Natural Gas	150	45,079	446	95,407	56	21,279	77	18,615	4	801	7	4,058
Nuclear	40	46,244	34	37,970	14	17,759	--	--	--	--	10	14,927
Petroleum	26	8,147	7	1,684	3	2,302	--	--	--	--	--	--
Solar Thermal	--	--	4	866	--	--	5	900	1	110	--	--
Other	18	1,962	25	2,161	--	--	1	72	--	--	1	128

Notes:

'Associated Net Summer Capacity' is defined as the net summer capacity of the generators that are associated with the operation of this environmental equipment. In some cases respondents have reported equipment late. Counts and capacity may have changed from prior publications of this table because of late reporting. Coal includes anthracite, bituminous, subbituminous, lignite, and waste coal; coal syngas and refined coal; and beginning in 2011, coal-derived synthesis gas. Prior to 2011 coal-derived synthesis gas was included in Other Gases. Petroleum Liquids includes distillate and residual fuel oils, jet fuel, kerosene, waste oil, and beginning in 2011, propane. Prior to 2011 propane was included in Other Gases. Petroleum Coke includes petroleum coke-derived synthesis gas. Prior to 2011, petroleum coke-derived synthesis gas was included in Other Gases. EIA did not collect cooling system data for nuclear units before 2010. Other Energy Sources consists of wood and wood waste products, biomass, blast furnace gas and other gases. Data for 2005 and earlier are based primarily on Form EIA-767 data. In 2006, the Form EIA-767 was suspended. Data for 2007 and later are based primarily on Form EIA-860 data. All data for 2006 are inferred based on submissions from subsequent years.

Source: U.S. Energy Information Administration, Forms EIA-767, "Steam-Electric Plant Operation and Design Report" and Form EIA-860, "Annual Electric Generator Report."

Table 9.4. Average Costs of Existing Flue Gas Desulfurization Units Operating in Electric Power Sector, 2009 - 2019

Year	Average Operation and Maintenance Costs (Dollars per Megawatthour)	Average Installed Capital Costs (Dollars per Kilowatt)
2009	1.44	345.85
2010	1.52	340.18
2011	1.79	335.16
2012	1.87	266.40
2013	1.74	255.86
2014	1.84	186.45
2015	2.03	157.83
2016	1.96	303.32
2017	2.15	246.61
2018	2.08	--
2019	2.11	454.98

Notes: Average Installed Capital Costs reflect units which began operating in the specified year. Prior publications of this table reported the average installation cost of all units that were operating during each year; the new metric is intended to portray a more accurate understanding of how installation costs have changed over time.

Years in which no new Flue Gas Desulfurization units were installed a '--' is indicated in the Average Installed Capital Cost column.

Average Operation and Maintenance Costs are based on all units in operation during the specified year regardless of installation year.

Commercial and industrial facilities had significantly different costs than units used in the electric power sector. In order to give a more accurate reflection of the electric power sector, commercial and industrial facilities have been excluded from this publication table; prior publications of this table included commercial and industrial facilities when calculating average costs.

Sources:

U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report'

Table 9.5. Emissions from Energy Consumption at Conventional Power Plants and Combined-Heat-and-Power Plants, by State, 2018 and 2019 (Thousand Metric Tons)

Census Division and State	Carbon Dioxide (CO2)		Sulfur Dioxide (SO2)		Nitrogen Oxides (NOx)	
	Year 2019	Year 2018	Year 2019	Year 2018	Year 2019	Year 2018
New England	24,813	27,317	10	12	23	25
Connecticut	9,517	9,591	0	1	5	6
Maine	1,823	2,202	7	7	5	6
Massachusetts	8,519	9,976	2	3	8	8
New Hampshire	1,952	2,191	1	1	2	3
Rhode Island	2,996	3,348	0	0	2	2
Vermont	7	10	0	0	1	0
Middle Atlantic	121,032	123,879	62	81	82	86
New Jersey	18,869	18,912	3	3	10	10
New York	24,807	27,936	8	11	26	29
Pennsylvania	77,357	77,031	51	67	45	47
East North Central	301,403	345,080	309	346	218	251
Illinois	63,036	72,261	86	80	33	37
Indiana	77,844	91,554	44	63	62	75
Michigan	57,232	61,435	74	74	51	52
Ohio	68,113	78,051	88	106	50	61
Wisconsin	35,179	41,779	16	23	22	26
West North Central	188,298	213,156	202	249	153	176
Iowa	28,989	34,253	27	34	24	29
Kansas	20,884	23,748	4	5	15	17
Minnesota	25,291	29,805	16	24	21	27
Missouri	57,516	65,623	81	94	42	48
Nebraska	23,660	25,525	42	54	20	22
North Dakota	28,668	31,282	31	37	29	32
South Dakota	3,289	2,921	1	1	1	1
South Atlantic	325,159	355,895	203	235	215	245
Delaware	2,650	3,193	0	1	1	2
District of Columbia	110	43	0	0	1	0
Florida	98,945	107,792	40	53	51	59
Georgia	51,074	54,803	48	48	40	43
Maryland	13,109	17,839	9	18	7	12
North Carolina	47,372	49,642	37	37	46	49
South Carolina	25,110	28,874	21	18	13	15
Virginia	29,965	33,504	13	18	22	28
West Virginia	56,823	60,203	35	42	34	37
East South Central	161,993	177,867	115	129	93	104
Alabama	50,842	56,140	32	37	26	32
Kentucky	58,805	66,267	48	53	40	45
Mississippi	25,018	26,157	12	12	16	15
Tennessee	27,328	29,303	23	27	12	12
West South Central	326,425	353,672	237	401	262	297
Arkansas	32,514	38,349	48	59	22	26
Louisiana	48,116	50,770	37	106	59	76
Oklahoma	28,239	34,476	9	32	19	24
Texas	217,556	230,076	143	203	163	171
Mountain	197,936	203,854	80	83	163	172
Arizona	43,562	46,757	11	15	34	38
Colorado	33,912	34,713	10	11	20	19
Idaho	2,293	1,766	4	4	5	4
Montana	16,348	15,614	12	11	17	16
Nevada	13,921	14,005	4	3	11	10
New Mexico	20,386	18,442	4	3	15	16
Utah	28,316	28,544	8	8	31	31
Wyoming	39,199	44,014	26	28	32	37
Pacific Contiguous	66,530	63,039	27	18	95	93
California	40,874	43,579	1	1	63	67
Oregon	11,029	8,800	7	6	15	12
Washington	14,628	10,661	19	11	16	14
Pacific Noncontiguous	10,807	10,587	21	18	37	35
Alaska	3,470	3,390	3	3	20	19
Hawaii	7,337	7,197	18	15	17	16
U.S. Total	1,724,396	1,874,346	1,267	1,571	1,342	1,485

The emissions data presented include total emissions from both electricity generation and the production of useful thermal output.

See Appendix A, Technical Notes, for a description of the sources and methodology used to develop the emissions estimates.

Displayed values of zero may represent small values that round to zero. The Excel version of this table provides additional precision which may be accessed by selecting individual cells.

Source: Calculations made by the Office of Electricity, Renewables, and Uranium Statistics, U.S. Energy Information

Chapter 10

Demand-Side Management and Advanced Metering

Table 10.1. Demand-Side Management Program Annual Effects by Program Category, 2009 through 2012

Year	Energy Efficiency		Load Management			Total	
	Energy Savings (Thousand MWh)	Actual Peak Load Reduction (MW)	Energy Savings (Thousand MWh)	Potential Peak Load Reduction (MW)	Actual Peak Load Reduction (MW)	Energy Savings (Thousand MWh)	Actual Peak Load Reduction (MW)
2009	76,912	19,761	1,027	26,310	11,972	77,939	31,732
2010	86,914	20,828	447	26,100	12,536	87,361	33,364
2011	120,659	26,314	556	26,596	12,126	121,214	38,439
2012	138,525	28,924	712	28,503	13,200	139,237	42,124

2012 was the last year this data was collected.

Previously, annual effects were reported for large respondents only. Now the annual effects include large and small respondents, combined.

Non-Utility DSM Administrators are included in the 2011 data. See technical notes for list.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 10.2. Demand-Side Management Program Annual Effects by Program

Category, by Sector, 2009 through 2012 (Table Discontinued)

Year	Residential	Commercial	Industrial	Transportation	Total
Energy Efficiency - Energy Savings (Thousand MWh)					
2009	27,395	34,831	14,610	76	76,912
2010	32,150	37,416	17,259	89	86,914
2011	46,790	50,732	23,061	76	120,659
2012	54,516	58,894	25,023	92	138,525
Energy Efficiency - Actual Peak Load Reduction (MW)					
2009	8,724	7,954	3,074	9	19,761
2010	9,404	8,046	3,368	10	20,828
2011	11,391	10,422	4,490	11	26,314
2012	12,821	11,743	4,348	12	28,924
Load Management - Energy Savings (Thousand MWh)					
2009	436	197	394	--	1,027
2010	215	113	118	--	447
2011	237	194	125	--	556
2012	257	368	87	--	712
Load Management - Potential Peak Load Reduction (MW)					
2009	7,308	6,460	12,462	81	26,310
2010	7,998	6,080	11,750	272	26,100
2011	7,882	6,023	12,380	311	26,596
2012	8,600	6,462	13,261	180	28,503
Load Management - Actual Peak Load Reduction (MW)					
2009	3,899	3,464	4,606	3	11,972
2010	4,726	2,854	4,819	137	12,536
2011	4,105	2,808	5,108	105	12,126
2012	4,152	3,208	5,732	108	13,200

2012 was the last year this data was collected.

Transportation data is not available before 2003.

Previously, annual data included only large respondents. Now it includes large and small respondents, combined.

Non-Utility DSM Administrators are included in the 2011 data. See technical notes for list.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 10.3. Demand-Side Management Program Incremental Effects by Program Category, 2009 through 2012 (Table Discontinued)

Year	Energy Efficiency		Load Management			Total	
	Energy Savings (Thousand MWh)	Actual Peak Load Reduction (MW)	Energy Savings (Thousand MWh)	Potential Peak Load Reduction (MW)	Actual Peak Load Reduction (MW)	Energy Savings (Thousand MWh)	Actual Peak Load Reduction (MW)
2009	12,907	3,721	65	6,042	2,224	12,972	5,945
2010	13,592	3,215	46	5,234	2,709	13,639	5,923
2011	21,421	3,974	135	4,043	2,062	21,556	6,036
2012	21,478	3,764	41	5,357	2,671	21,520	6,435

2012 was the last year this data was collected.

Previously, large and small respondents were published separately, now they are combined.

Non-Utility DSM Administrators are included in the 2011 data. See technical notes for list.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 10.4. Demand-Side Management Program Incremental Effects by Program

Category, by Sector, 2009 through 2012 (Table Discontinued)

Year	Residential	Commercial	Industrial	Transportation	Total
Energy Efficiency - Energy Savings (Thousand MWh)					
2009	5,030	4,959	2,918	1	12,907
2010	6,492	5,325	1,771	5	13,592
2011	9,989	8,166	3,261	6	21,421
2012	9,531	8,924	3,019	4	21,478
Energy Efficiency - Actual Peak Load Reduction (MW)					
2009	1,849	1,044	827	1	3,721
2010	1,378	1,053	783	1	3,215
2011	1,628	1,545	800	1	3,974
2012	1,775	1,562	426	1	3,764
Load Management - Energy Savings (Thousand MWh)					
2009	34	21	10	--	65
2010	13	21	12	--	46
2011	29	86	21	--	135
2012	20	14	7	--	41
Load Management - Potential Peak Load Reduction (MW)					
2009	1,922	1,971	2,127	22	6,042
2010	1,976	1,171	2,087	--	5,234
2011	1,324	1,327	1,392	--	4,043
2012	1,369	1,155	2,833	1	5,357
Load Management - Actual Peak Load Reduction (MW)					
2009	793	781	648	3	2,224
2010	666	948	1,095	--	2,709
2011	817	619	625	--	2,062
2012	686	737	1,248	*	2,671

2012 was the last year this data was collected.

Transportation data is not available before 2003.

Previously, large and small respondents were published separately, now they are combined.

Non-Utility DSM Administrators are included in the 2011 data. See technical notes for list.

Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 10.5. Demand-Side Management Program Direct and Indirect Costs,

2009 through 2012 (Thousand Dollars) (Table Discontinued)

Year	Energy Efficiency	Load Management	Direct Cost	Indirect Cost	Total Cost
2009	2,221,480	944,261	3,165,741	394,193	3,607,076
2010	2,906,906	1,048,356	3,955,262	275,158	4,230,420
2011	4,002,672	1,213,102	5,215,774	328,622	5,544,396
2012	4,397,635	1,270,391	5,668,026	332,440	6,000,466

2012 was the last year this data was collected.

Direct Costs reflect electric utility costs incurred during the year that are identified with Energy Efficiency and Load Management. Total Costs are the sum of Direct and Indirect Costs.

Previously, this table included only large respondents. Now it includes large and small respondents, combined.

For the total cost data, prior to 2010, both large and small respondents reported total costs, however small respondents did not break out the costs into direct and indirect. The direct and indirect costs were reported for large respondents only.

Therefore, prior to 2010 the total cost does not equal the sum of the direct and indirect costs.

Totals may not equal sum of components because of independent rounding.

Non-Utility DSM Administrators are included in the 2011 data. See technical notes for list.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

**Table 10.6. Energy Efficiency
Category, by Sector, 2013 through 2019**

Year	Residential	Commercial	Industrial	Transportation	Total
Incremental Annual Savings - Energy Savings (MWh)					
2013	11,020,468	10,461,718	3,141,044	29,894	24,653,124
2014	11,443,087	11,928,798	3,074,819	19,316	26,466,020
2015	11,012,627	12,285,000	2,818,448	13,414	26,129,489
2016	11,712,873	13,348,029	2,425,175	14,147	27,500,224
2017	13,199,995	14,095,101	2,592,155	11,776	29,899,028
2018	12,459,323	13,350,203	2,565,238	40,273	28,415,037
2019	13,283,024	12,706,234	2,538,169	35,103	28,562,529
Incremental Annual Savings - Peak Demand Savings (MW)					
2013	3,642	5,974	1,458	5	11,078
2014	3,000	2,889	563	2	6,453
2015	2,654	2,891	407	--	5,952
2016	2,698	2,556	401	3	5,658
2017	2,790	2,739	540	1	6,071
2018	2,775	3,072	459	4	6,309
2019	3,402	3,116	614	4	7,135
Incremental Costs - Customer Incentive (thousand dollars)					
2013	1,251,703	1,274,284	345,662	5	2,871,654
2014	1,522,205	1,561,358	327,227	64	3,410,854
2015	1,488,651	1,616,843	342,773	20	3,448,286
2016	1,541,458	1,733,170	296,321	--	3,570,950
2017	1,657,086	1,713,295	294,026	--	3,664,407
2018	1,602,723	1,608,369	273,676	--	3,484,767
2019	1,712,243	1,659,591	285,643	--	3,657,477
Incremental Costs - All Other Costs (thousand dollars)					
2013	1,015,135	749,710	179,719	33	1,944,597
2014	1,088,914	911,967	208,095	122	2,209,098
2015	1,152,224	938,021	193,015	40	2,283,300
2016	1,387,122	959,160	176,560	12	2,522,854
2017	1,221,072	900,291	176,585	10	2,297,957
2018	1,127,692	874,427	163,783	78	2,165,981
2019	1,209,389	910,039	168,567	33	2,288,028

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 10.7. Energy Efficiency - Life Cycle Category, by Sector, 2013 through 2019

Year	Residential	Commercial	Industrial	Transportation	Total
Life Cycle Savings - Energy Savings (MWh)					
2013	83,729,903	127,269,038	38,493,282	448,421	249,940,645
2014	105,870,642	156,171,166	39,626,390	287,925	301,956,123
2015	99,512,487	160,045,443	36,589,144	199,328	296,346,403
2016	134,003,597	186,654,713	33,477,182	212,200	354,347,692
2017	137,297,599	204,102,657	33,249,999	176,636	374,826,892
2018	129,572,460	195,288,558	33,981,062	604,095	359,446,175
2019	134,474,216	186,931,400	33,284,347	526,549	355,216,512
Life Cycle Savings - Peak Demand Savings (MW)					
2013	3,782	5,876	1,293	6	10,956
2014	4,058	3,308	672	2	8,040
2015	3,492	3,104	500		7,096
2016	3,408	3,132	507	3	7,050
2017	2,668	2,698	584	1	5,951
2018	2,649	2,987	436	4	6,075
2019	3,322	2,993	613	4	6,931
Life Cycle Costs - Customer Incentive (thousand dollars)					
2013	2,698,135	2,875,483	455,343	5	6,028,810
2014	1,748,893	1,912,277	346,218	64	4,007,452
2015	1,844,246	1,997,677	413,416	30	4,255,368
2016	1,704,458	2,079,373	342,927		4,126,758
2017	2,194,049	2,359,255	296,498		4,849,803
2018	1,808,354	2,093,170	276,381		4,177,905
2019	1,911,197	2,000,492	440,237		4,351,926
Life Cycle Costs - All Other Costs (thousand dollars)					
2013	2,134,225	1,626,069	234,577	33	3,994,889
2014	1,555,433	1,348,672	216,673	122	3,120,898
2015	2,086,543	1,407,658	216,226	40	3,710,453
2016	1,964,832	1,265,765	202,112	12	3,432,717
2017	1,649,863	1,335,176	177,945	10	3,162,995
2018	2,605,135	1,409,483	164,623	78	4,179,320
2019	1,884,678	1,527,461	243,435	33	3,655,607

* = Value is less than half of the smallest unit of measure.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 10.8. Demand Response - Yearly Energy and Demand Savings Category, by Sector, 2013 through 2019

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Customers Enrolled					
2013	8,419,233	611,826	155,893	398	9,187,350
2014	8,603,402	605,094	57,129	4	9,265,629
2015	8,140,688	890,284	63,163	3	9,094,138
2016	8,739,535	1,033,649	66,170	1	9,839,355
2017	8,287,913	1,084,392	68,630	3	9,440,938
2018	8,700,669	986,816	64,753	--	9,752,238
2019	10,447,335	432,669	52,841	--	10,932,845
Energy Savings (MWh)					
2013	799,743	486,348	115,895	1	1,401,987
2014	881,563	462,337	92,549	--	1,436,449
2015	855,017	273,089	122,900	--	1,251,006
2016	1,005,144	225,174	105,818	--	1,336,136
2017	948,037	244,603	118,230	--	1,310,862
2018	1,099,179	221,502	105,536	--	1,426,211
2019	1,075,567	306,832	80,336	--	1,462,735
Potential Peak Demand Savings (MW)					
2013	7,003	5,124	14,800	168	27,095
2014	8,118	6,215	16,505	353	31,191
2015	8,703	6,989	17,169	14	32,875
2016	10,518	11,053	14,339	14	35,924
2017	8,996	6,995	15,512	5	31,508
2018	8,539	7,021	15,335	--	30,895
2019	8,867	6,907	15,246	--	31,020
Actual Peak Demand Savings (MW)					
2013	3,381	2,548	5,805	149	11,883
2014	3,147	2,652	6,883	1	12,683
2015	3,430	3,047	6,546	13	13,036
2016	3,608	3,598	4,632	4	11,841
2017	3,960	2,743	5,546	--	12,248
2018	3,788	2,694	6,040	--	12,522
2019	3,426	2,403	5,505	--	11,334

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

**Table 10.9. Demand Response - Program Costs
Category, by Sector, 2013 through 2019**

Year	Residential	Commercial	Industrial	Transportation	Total
Customer Incentives (thousand dollars)					
2013	398,598	286,057	421,208	6,919	1,112,782
2014	345,894	345,435	514,751	11,716	1,217,796
2015	320,683	338,153	461,271	339	1,120,446
2016	306,635	448,332	284,584	339	1,039,890
2017	292,443	345,226	365,451	--	1,003,124
2018	310,892	347,235	531,157	--	1,189,284
2019	306,152	322,611	490,119	--	1,118,882
All Other Costs (thousand dollars)					
2013	338,353	95,748	50,982	50	485,133
2014	301,389	101,127	45,028	115	447,659
2015	256,519	78,758	46,613	28	381,918
2016	253,180	66,084	60,443	--	379,707
2017	245,231	68,251	57,221	--	370,700
2018	235,159	66,024	59,534	--	360,718
2019	223,129	49,407	70,677	--	343,214

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 10.10. Advanced Metering Count by Technology Type, 2010 through 2019

Year	Residential	Commercial	Industrial	Transportation	Total
Automated Meter Reading (AMR)					
2010	43,913,225	4,611,877	159,315	626	48,685,043
2011	41,451,888	4,341,105	172,692	77	45,965,762
2012	43,455,437	4,691,018	185,862	125	48,330,822
2013	42,491,242	4,632,744	196,132	1,202	47,321,320
2014	41,830,781	4,781,167	216,459	1,252	46,829,659
2015	42,326,302	5,049,978	226,908	1,023	47,604,211
2016	41,508,261	5,074,877	223,584	971	46,807,693
2017	39,325,014	4,813,029	230,099	707	44,368,849
2018	36,365,339	4,591,398	213,108	712	41,170,557
2019	32,750,506	4,160,628	207,286	861	37,119,281
Advanced Metering Infrastructure (AMI)					
2010	18,369,908	1,904,983	59,567	67	20,334,525
2011	33,453,548	3,682,159	154,659	7	37,290,373
2012	38,524,639	4,461,350	179,159	35	43,165,183
2013	47,321,995	5,770,067	248,515	845	53,341,422
2014	51,710,725	6,563,614	270,683	916	58,545,938
2015	57,107,785	7,324,345	310,889	813	64,743,832
2016	62,360,132	8,119,223	342,766	1,345	70,823,466
2017	69,474,626	9,060,128	365,447	1,389	78,901,590
2018	76,498,388	9,932,993	411,287	1,489	86,844,157
2019	83,539,594	10,850,886	446,871	1,504	94,838,855
Standard (non-AMR/AMI) Meters					
2010	--	--	--	--	--
2011	--	--	--	--	--
2012	--	--	--	--	--
2013	32,059,522	5,104,322	244,114	132	37,408,090
2014	32,995,176	5,642,247	254,621	1,331	38,893,375
2015	32,430,105	5,744,831	290,354	432	38,465,722
2016	28,491,094	4,929,344	280,406	416	33,701,260
2017	24,351,523	4,261,918	225,949	445	28,839,835
2018	21,982,727	3,884,695	186,001	414	26,053,837
2019	20,778,995	3,734,399	175,344	478	24,689,216
Total Number of Meters					
2010	--	--	--	--	--
2011	--	--	--	--	--
2012	--	--	--	--	--
2013	121,872,759	15,507,133	688,761	2,179	138,070,832
2014	126,536,682	16,987,028	741,763	3,499	144,268,972
2015	131,864,192	18,119,154	828,151	2,268	150,813,765
2016	132,359,487	18,123,444	846,756	2,732	151,332,419
2017	133,151,163	18,135,075	821,495	2,541	152,110,274
2018	134,846,454	18,409,086	810,396	2,615	154,068,551
2019	137,069,095	18,745,913	829,501	2,843	156,647,352

Prior to 2010, the count was the number of customers, not number of meters.

Starting in 2013 Standard (Non-AMR/AMI) meter data was collected on the EIA-861.

This data is not collected on the EIA-861S.

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report." Form EIA-861S, "Annual Electric Power Industry Report (Short Form)."

Chapter 11

U.S. Territories

**Table 11.1 Puerto Rico- Number of Ultimate Customers Served:
by Sector, 2009 through 2019**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2009	1,330,507	132,620	828	--	1,463,955
2010	1,339,703	133,029	790	--	1,473,522
2011	1,341,708	132,738	750	--	1,475,196
2012	1,349,750	131,264	721	--	1,481,735
2013	1,340,989	131,034	694	--	1,472,717
2014	1,328,546	129,122	662	--	1,458,330
2015	1,326,631	127,365	647	--	1,454,643
2016	1,332,152	127,179	633	--	1,459,964
2017	1,337,756	127,065	618	--	1,465,439
2018	1,346,102	126,527	602	--	1,473,231
2019	1,341,424	124,912	588	--	1,466,924
Year 2017					
January	1,336,481	127,251	627	--	1,464,359
February	1,337,101	127,229	626	--	1,464,956
March	1,335,413	127,147	620	--	1,463,180
April	1,337,164	127,086	620	--	1,464,870
May	1,337,956	127,048	618	--	1,465,622
June	1,339,373	127,119	616	--	1,467,108
July	1,338,891	127,049	614	--	1,466,554
August	1,337,758	127,026	615	--	1,465,399
September	1,338,973	127,056	615	--	1,466,644
October	1,337,261	126,948	615	--	1,464,824
November	1,338,117	126,941	613	--	1,465,671
December	1,338,583	126,877	612	--	1,466,072
Year 2018					
January	1,343,369	126,955	605	--	1,470,929
February	1,342,510	126,695	606	--	1,469,811
March	1,343,914	126,640	607	--	1,471,161
April	1,344,684	126,489	606	--	1,471,779
May	1,344,960	126,396	604	--	1,471,960
June	1,344,798	126,278	604	--	1,471,680
July	1,345,450	126,221	601	--	1,472,272
August	1,346,380	126,283	598	--	1,473,261
September	1,347,298	126,375	599	--	1,474,272
October	1,348,855	126,492	597	--	1,475,944
November	1,349,924	126,702	595	--	1,477,221
December	1,351,082	126,800	596	--	1,478,478
Year 2019					
January	1,343,649	125,945	594	--	1,470,188
February	1,344,627	125,872	593	--	1,471,092
March	1,345,398	125,610	595	--	1,471,603
April	1,344,357	125,225	590	--	1,470,172
May	1,343,442	125,067	589	--	1,469,098
June	1,341,453	124,798	588	--	1,466,839
July	1,341,100	124,692	588	--	1,466,380
August	1,339,811	124,550	587	--	1,464,948
September	1,338,804	124,409	584	--	1,463,797
October	1,338,280	124,254	583	--	1,463,117
November	1,338,174	124,157	582	--	1,462,913
December	1,337,987	124,366	581	--	1,462,934

Sources: U.S. Energy Information Administration, Form EIA-861M (formerly EIA-826), Monthly Electric Industry Power Report.
Form EIA-826, Monthly Electric Sales and Revenue Report with State Distributions Report;
Form EIA-861, Annual Electric Power Industry Report

**Table 11.2 Puerto Rico- Sales of Electricity to Ultimate Customers:
by Sector, 2009 through 2019 (Megawatthours)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2009	6,673,185	8,936,576	3,094,188	--	18,703,949
2010	6,975,149	9,041,424	2,967,817	--	18,984,390
2011	6,586,877	8,832,355	2,832,127	--	18,251,359
2012	6,770,865	8,879,105	2,500,360	--	18,150,330
2013	6,319,746	8,968,572	2,504,182	--	17,792,500
2014	6,218,352	8,761,182	2,376,022	--	17,355,556
2015	6,313,615	8,586,457	2,355,385	--	17,255,457
2016	6,524,304	8,568,874	2,251,095	--	17,344,273
2017	5,045,346	6,819,591	1,746,554	--	13,611,491
2018	6,102,980	8,202,893	2,128,354	--	16,434,227
2019	6,205,152	7,905,084	2,048,192	--	16,158,428
Year 2017					
January	507,862	649,624	159,232	--	1,316,718
February	395,440	575,493	153,949	--	1,124,883
March	490,439	697,879	191,188	--	1,379,507
April	494,072	628,330	184,098	--	1,306,500
May	525,030	675,349	181,797	--	1,382,176
June	595,232	692,079	184,358	--	1,471,669
July	590,447	709,863	200,197	--	1,500,507
August	631,851	718,603	186,937	--	1,537,392
September	519,910	372,458	127,184	--	1,019,551
October	16,339	224,180	11,110	--	251,630
November	41,829	569,484	28,062	--	639,375
December	236,894	306,249	138,441	--	681,584
Year 2018					
January	389,090	558,621	141,787	--	1,089,498
February	393,230	760,068	174,720	--	1,328,018
March	450,083	531,455	98,406	--	1,079,945
April	466,218	784,445	273,377	--	1,524,040
May	565,759	801,950	165,300	--	1,533,009
June	507,497	591,959	208,432	--	1,307,888
July	577,748	680,752	145,339	--	1,403,840
August	577,416	688,524	209,353	--	1,475,293
September	527,390	722,248	186,217	--	1,435,855
October	697,731	847,420	191,078	--	1,736,230
November	456,854	593,194	172,051	--	1,222,099
December	493,964	642,258	162,293	--	1,298,515
Year 2019					
January	446,630	572,906	154,093	--	1,173,629
February	367,258	487,108	145,670	--	1,000,036
March	448,373	650,652	179,999	--	1,279,023
April	465,255	681,472	164,587	--	1,311,314
May	512,020	655,330	188,520	--	1,355,870
June	567,550	692,815	170,676	--	1,431,041
July	618,052	687,926	181,218	--	1,487,197
August	594,230	718,690	175,077	--	1,487,997
September	585,897	712,800	165,757	--	1,464,454
October	587,379	712,597	195,722	--	1,495,698
November	503,846	677,555	161,844	--	1,343,245
December	508,662	655,234	165,029	--	1,328,925

Sources: U.S. Energy Information Administration, Form EIA-861M (formerly EIA-826), Monthly Electric Industry Power Report.
Form EIA-826, Monthly Electric Sales and Revenue Report with State Distributions Report;
Form EIA-861, Annual Electric Power Industry Report

Table 11.3 Puerto Rico- Revenue from Sales of Electricity to Ultimate Customers: by Sector, 2009 through 2019 (Thousand Dollars)

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2009	1,313,102	1,868,381	517,578	--	3,699,061
2010	1,520,584	2,102,942	564,218	--	4,187,744
2011	1,748,433	2,483,175	662,537	--	4,894,145
2012	1,689,700	2,604,712	647,414	--	4,941,826
2013	1,633,328	2,474,088	570,210	--	4,677,626
2014	1,636,166	2,394,155	550,673	--	4,580,994
2015	1,282,008	1,850,101	417,158	--	3,549,267
2016	1,169,715	1,677,209	356,310	--	3,203,233
2017	1,123,005	1,549,337	344,034	--	3,016,376
2018	1,265,179	1,893,330	405,173	--	3,563,682
2019	1,329,706	1,810,611	420,178	--	3,560,495
Year 2017					
January	112,261	142,225	29,890	--	284,375
February	99,221	142,975	31,523	--	273,719
March	105,243	151,375	33,960	--	290,577
April	109,465	143,850	33,925	--	287,239
May	118,971	157,160	34,597	--	310,728
June	129,095	151,630	33,508	--	314,233
July	129,968	160,590	36,898	--	327,456
August	142,908	166,467	35,351	--	344,726
September	100,645	74,126	20,797	--	195,568
October	6,083	45,705	4,476	--	56,264
November	19,236	115,412	14,884	--	149,531
December	49,911	97,824	34,226	--	181,961
Year 2018					
January	86,018	159,397	31,640	--	277,056
February	75,989	170,895	32,231	--	279,115
March	109,809	148,653	22,060	--	280,522
April	84,357	161,256	54,292	--	299,904
May	103,994	165,295	22,768	--	292,057
June	107,787	132,963	40,090	--	280,839
July	122,329	165,585	28,750	--	316,664
August	114,400	148,958	38,757	--	302,114
September	109,452	162,472	33,858	--	305,781
October	136,653	181,005	35,721	--	353,379
November	101,917	142,385	33,635	--	277,937
December	112,475	154,467	31,372	--	298,314
Year 2019					
January	85,157	133,940	30,481	--	249,578
February	80,236	108,862	29,331	--	218,430
March	97,926	156,348	36,593	--	290,868
April	106,476	176,783	36,066	--	319,326
May	126,532	132,306	40,714	--	299,553
June	115,587	156,609	36,290	--	308,486
July	121,856	140,238	32,435	--	294,529
August	132,042	174,002	37,054	--	343,098
September	113,409	149,848	31,382	--	294,638
October	126,261	162,497	39,071	--	327,830
November	106,555	154,101	33,426	--	294,082
December	117,668	165,076	37,334	--	320,077

Sources: U.S. Energy Information Administration, Form EIA-861M (formerly EIA-826), Monthly Electric Industry Power Report. Form EIA-826, Monthly Electric Sales and Revenue Report with State Distributions Report; Form EIA-861, Annual Electric Power Industry Report

**Table 11.4 Puerto Rico- Average Price of Electricity to Ultimate Customers:
by Sector, 2009 through 2019 (Cents per Kilowatthour)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2009	19.68	20.91	16.73	--	19.78
2010	21.80	23.26	19.01	--	22.06
2011	26.54	28.11	23.39	--	26.82
2012	24.96	29.34	25.89	--	27.23
2013	25.84	27.59	22.77	--	26.29
2014	26.31	27.33	23.18	--	26.39
2015	20.31	21.55	17.71	--	20.57
2016	17.93	19.57	15.83	--	18.47
2017	22.26	22.72	19.70	--	22.16
2018	20.73	23.08	19.04	--	21.68
2019	21.43	22.90	20.51	--	22.03
Year 2017					
January	22.10	21.89	18.77	--	21.60
February	25.09	24.84	20.48	--	24.33
March	21.46	21.69	17.76	--	21.06
April	22.16	22.89	18.43	--	21.99
May	22.66	23.27	19.03	--	22.48
June	21.69	21.91	18.18	--	21.35
July	22.01	22.62	18.43	--	21.82
August	22.62	23.17	18.91	--	22.42
September	19.36	19.90	16.35	--	19.18
October	37.23	20.39	40.29	--	22.36
November	45.99	20.27	53.04	--	23.39
December	21.07	31.94	24.72	--	26.70
Year 2018					
January	22.11	28.53	22.32	--	25.43
February	19.32	22.48	18.45	--	21.02
March	24.40	27.97	22.42	--	25.98
April	18.09	20.56	19.86	--	19.68
May	18.38	20.61	13.77	--	19.05
June	21.24	22.46	19.23	--	21.47
July	21.17	24.32	19.78	--	22.56
August	19.81	21.63	18.51	--	20.48
September	20.75	22.50	18.18	--	21.30
October	19.59	21.36	18.69	--	20.35
November	22.31	24.00	19.55	--	22.74
December	22.77	24.05	19.33	--	22.97
Year 2019					
January	19.07	23.38	19.78	--	21.27
February	21.85	22.35	20.14	--	21.84
March	21.84	24.03	20.33	--	22.74
April	22.89	25.94	21.91	--	24.35
May	24.71	20.19	21.60	--	22.09
June	20.37	22.60	21.26	--	21.56
July	19.72	20.39	17.90	--	19.80
August	22.22	24.21	21.16	--	23.06
September	19.36	21.02	18.93	--	20.12
October	21.50	22.80	19.96	--	21.92
November	21.15	22.74	20.65	--	21.89
December	23.13	25.19	22.62	--	24.09

Sources: U.S. Energy Information Administration, Form EIA-861M (formerly EIA-826), Monthly Electric Industry Power Report.
Form EIA-826, Monthly Electric Sales and Revenue Report with State Distributions Report;
Form EIA-861, Annual Electric Power Industry Report

**Table 11.5. American Samoa
By Sector, 2009 through 2019**

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Ultimate Customers					
2009	10,453	1,418	9	--	11,880
2010	10,475	1,404	5	--	11,884
2011	10,616	1,447	4	--	12,067
2012	10,736	1,437	4	--	12,177
2013	10,945	1,411	4	--	12,360
2014	11,561	1,386	4	--	12,951
2015	11,023	1,356	4	--	12,383
2016	10,916	1,363	6	--	12,285
2017	10,930	1,386	4	--	12,320
2018	10,866	1,395	4	--	12,265
2019	10,762	1,450	4	--	12,216
Sales of Electricity to Ultimate Customers (megawatthours)					
2009	43,398	77,754	36,613	--	157,765
2010	45,269	76,014	20,587	--	141,870
2011	41,144	72,785	22,352	--	136,281
2012	39,935	71,952	22,539	--	134,426
2013	40,719	71,069	23,724	--	135,512
2014	41,029	70,598	23,142	--	134,769
2015	43,306	72,007	25,974	--	141,287
2016	46,493	69,617	32,232	--	148,342
2017	49,538	71,173	26,699	--	147,410
2018	45,621	72,185	24,546	--	142,352
2019	47,127	75,151	25,415	--	147,693
Revenue from Sales of Electricity to Ultimate Customers (thousand dollars)					
2009	13,185	23,273	9,786	--	46,244
2010	14,336	23,651	5,751	--	43,737
2011	16,459	26,981	7,457	--	50,898
2012	17,343	29,092	8,233	--	54,668
2013	15,809	27,905	8,339	--	52,053
2014	17,286	27,553	8,076	--	52,915
2015	15,035	22,981	7,695	--	45,710
2016	13,184	18,402	7,962	--	39,548
2017	15,020	20,626	7,294	--	42,940
2018	15,434	23,557	7,668	--	46,659
2019	16,617	25,328	8,211	--	50,155
Average Price of Electricity to Ultimate Customers (cents per kilowatthour)					
2009	30.38	29.93	26.73	--	29.31
2010	31.67	31.11	27.93	--	30.83
2011	40.00	37.07	33.36	--	37.35
2012	43.43	40.43	36.53	--	40.67
2013	38.82	39.26	35.15	--	38.41
2014	42.13	39.03	34.90	--	39.26
2015	34.72	31.91	29.63	--	32.35
2016	28.36	26.43	24.70	--	26.66
2017	30.32	28.98	27.32	--	29.13
2018	33.83	32.63	31.24	--	32.78
2019	35.26	33.70	32.31	--	33.96

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

**Table 11.6. Guam
By Sector, 2009 through 2019**

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Ultimate Customers					
2009	39,863	6,625	--	--	46,488
2010	40,633	6,700	--	--	47,333
2011	41,255	6,717	--	--	47,972
2012	41,612	6,908	--	--	48,520
2013	41,708	6,890	--	--	48,598
2014	41,999	6,925	--	--	48,924
2015	42,752	6,940	--	--	49,692
2016	43,943	6,956	--	--	50,899
2017	43,756	7,087	--	--	50,843
2018	44,006	7,366	--	--	51,372
2019	44,226	7,517	--	--	51,743
Sales of Electricity to Ultimate Customers (megawatthours)					
2009	471,385	1,152,841	--	--	1,624,226
2010	486,962	1,150,700	--	--	1,637,662
2011	487,230	1,130,580	--	--	1,617,810
2012	459,499	1,103,976	--	--	1,563,475
2013	462,163	1,104,247	--	--	1,566,410
2014	457,835	1,075,511	--	--	1,533,346
2015	463,990	1,078,018	--	--	1,542,008
2016	494,842	1,087,317	--	--	1,582,159
2017	516,682	1,103,757	--	--	1,620,439
2018	510,725	1,071,705	--	--	1,582,430
2019	514,829	1,071,513	--	--	1,586,342
Revenue from Sales of Electricity to Ultimate Customers (thousand dollars)					
2009	103,972	284,032	--	--	388,004
2010	101,892	262,998	--	--	364,890
2011	112,320	279,555	--	--	391,875
2012	122,259	315,853	--	--	438,112
2013	122,463	315,369	--	--	437,832
2014	125,028	309,439	--	--	434,467
2015	106,057	260,652	--	--	366,709
2016	93,568	214,840	--	--	308,408
2017	103,327	230,472	--	--	333,799
2018	121,331	260,506	--	--	381,837
2019	128,641	275,267	--	--	403,908
Average Price of Electricity to Ultimate Customers (cents per kilowatthour)					
2009	22.06	24.64	--	--	23.89
2010	20.92	22.86	--	--	22.28
2011	23.05	24.73	--	--	24.22
2012	26.61	28.61	--	--	28.02
2013	26.50	28.56	--	--	27.95
2014	27.31	28.77	--	--	28.33
2015	22.86	24.18	--	--	23.78
2016	18.91	19.76	--	--	19.49
2017	20.00	20.88	--	--	20.60
2018	23.76	24.31	--	--	24.13
2019	24.99	25.69	--	--	25.46

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

**Table 11.7. Northern Mariana Islands
By Sector, 2011 through 2019**

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Ultimate Customers					
2011	11,010	3,673	--	--	14,683
2012	10,657	3,615	--	--	14,272
2013	11,138	3,524	--	--	14,662
2014	11,045	3,651	--	--	14,696
2015	11,318	3,612	--	--	14,930
2016	11,869	3,952	--	--	15,821
2017	12,106	3,952	--	--	16,058
2018	12,323	4,243	--	--	16,566
2019	11,525	3,983	--	--	15,508
Sales of Electricity to Ultimate Customers (megawatthours)					
2011	65,962	160,389	--	--	226,351
2012	57,490	157,247	--	--	214,737
2013	54,056	154,505	--	--	208,561
2014	57,532	153,959	--	--	211,491
2015	52,928	145,170	--	--	198,098
2016	70,404	177,766	--	--	248,170
2017	80,502	193,399	--	--	273,901
2018	75,128	182,533	--	--	257,661
2019	76,795	180,421	--	--	257,216
Revenue from Sales of Electricity to Ultimate Customers (thousand dollars)					
2011	23,615	66,316	--	--	89,931
2012	20,209	66,437	--	--	86,646
2013	20,128	67,020	--	--	87,148
2014	20,714	66,034	--	--	86,749
2015	12,197	43,521	--	--	55,718
2016	12,657	42,870	--	--	55,527
2017	18,653	52,614	--	--	71,268
2018	20,530	58,788	--	--	79,318
2019	19,410	55,434	--	--	74,844
Average Price of Electricity to Ultimate Customers (cents per kilowatthour)					
2011	35.80	41.35	--	--	39.73
2012	35.15	42.25	--	--	40.35
2013	37.24	43.38	--	--	41.79
2014	36.01	42.89	--	--	41.02
2015	23.04	29.98	--	--	28.13
2016	17.98	24.12	--	--	22.37
2017	23.17	27.21	--	--	26.02
2018	27.33	32.21	--	--	30.78
2019	25.28	30.72	--	--	29.10

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

**Table 11.8. Virgin Islands
By Sector, 2009 through 2019**

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Ultimate Customers					
2009	44,237	8,907	1,032	--	54,176
2010	44,711	8,320	1,038	--	54,069
2011	44,993	8,881	1,031	--	54,905
2012	44,780	8,826	1,023	--	54,629
2013	44,736	8,785	1,050	--	54,571
2014	45,066	8,808	1,043	--	54,917
2015	45,090	8,747	1,044	--	54,881
2016	49,559	9,951	1,089	--	60,599
2017	49,559	9,951	1,089	--	60,599
2018	46,721	7,491	2,238	--	56,450
2019	46,283	7,526	2,324	--	56,133
Sales of Electricity to Ultimate Customers (megawatthours)					
2009	248,227	127,325	348,725	--	724,277
2010	264,932	120,988	368,867	--	754,787
2011	266,721	151,424	337,652	--	755,797
2012	249,011	156,328	318,578	--	723,917
2013	231,148	123,234	326,158	--	680,540
2014	219,402	113,517	308,119	--	641,038
2015	211,753	109,530	299,598	--	620,881
2016	224,268	115,464	298,959	--	638,691
2017	174,208	85,273	201,822	--	461,303
2018	191,200	75,000	256,100	--	522,300
2019	217,003	87,000	257,313	--	561,316
Revenue from Sales of Electricity to Ultimate Customers (thousand dollars)					
2009	90,735	49,695	124,189	--	264,619
2010	112,891	42,486	132,097	--	287,474
2011	94,859	61,096	124,404	--	280,359
2012	109,441	57,856	150,636	--	317,932
2013	112,133	62,760	158,869	--	333,762
2014	108,204	58,361	153,232	--	319,797
2015	90,567	43,840	134,197	--	268,603
2016	76,907	45,969	101,434	--	224,310
2017	72,035	38,703	93,206	--	203,944
2018	66,093	36,220	83,192	--	185,505
2019	84,090	43,842	95,311	--	223,243
Average Price of Electricity to Ultimate Customers (cents per kilowatthour)					
2009	36.55	39.03	35.61	--	36.54
2010	42.61	35.12	35.81	--	38.09
2011	35.56	40.35	36.84	--	37.09
2012	43.95	37.01	47.28	--	43.92
2013	48.51	50.93	48.71	--	49.04
2014	49.32	51.41	49.73	--	49.89
2015	42.77	40.03	44.79	--	43.26
2016	34.29	39.81	33.93	--	35.12
2017	41.35	45.39	46.18	--	44.21
2018	34.57	48.29	32.48	--	35.52
2019	38.75	50.39	37.04	--	39.77

Source: U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Appendix

Table A.1. Sulfur Dioxide Uncontrolled Emission Factors

Fuel, Code, Source and Emission Units				Combustion System Type / Firing Configuration						
Fuel	EIA Fuel Code	Source and Tables (As Appropriate)	Emissions Units Lbs = Pounds MMCF = Million Cubic Feet MG = Thousand Gallons	Cyclone Firing Boiler	Fluidized Bed Firing Boiler	Stoker Boiler	Tangential Firing Boiler	All Other Boiler Types	Combustion Turbine	Internal Combustion Engine
Distillate Fuel Oil*	DFO	Source: 2, Table 3.1-2a, 3.4-1 & 1.3-1	Lbs per MG	142.00	14.20	142.00	142.00	142.00	140.00	140.00
Jet Fuel*	JF	Assumed to have emissions similar to DFO.	Lbs per MG	142.00	14.20	142.00	142.00	142.00	140.00	140.00
Kerosene*	KER	Assumed to have emissions similar to DFO.	Lbs per MG	142.00	14.20	142.00	142.00	142.00	140.00	140.00
Other Biomass Liquids*	OBL	Source: 1 (including footnotes 3 and 16 within source)	Lbs per MG	142.00	14.20	142.00	142.00	142.00	140.00	140.00
Residual Fuel Oil*	RFO	Source: 2, Table 1.3-1; Combustion turbines and internal combustion engines assumed to have emissions similar to DFO.	Lbs per MG	157.00	15.70	157.00	157.00	157.00	140.00	140.00
Wood Waste Liquids*	WDL	Source: 1 (including footnotes 3 and 16 within source)	Lbs per MG	142.00	14.20	142.00	142.00	142.00	140.00	140.00
Waste Oil*	WO	Source: 2, Table 1.11-2; Combustion turbines and internal combustion engines assumed to have emissions similar to DFO.	Lbs per MG	147.00	14.70	147.00	147.00	147.00	140.00	140.00
Blast Furnace Gas	BFG	Sources: 1 (including footnote 7 within source); 2, Table 1.4-2 (including footnote d within source)	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Landfill Gas	LFG	Sources: 1 (including footnote 7 within source); 2, Table 1.4-2 (including footnote d within source)	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Natural Gas	NG	Sources: 1 (including footnote 7 within source); 2, Table 1.4-2 (including footnote d within source)	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Other Biomass Gas	OBG	Sources: 1 (including footnote 7 within source); 2, Table 1.4-2 (including footnote d within source)	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Other Gases	OG	Source: 1 (including footnote 7 within source)	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Other	OTH	Assumed to have emissions similar to Natural Gas.	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Propane Gas	PG	Sources: 1 (including footnote 7 within source); 2, Table 1.4-2 (including footnote d within source)	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Coal-Derived Synthesis Gas	SGC	Assumed to have emissions similar to Natural Gas	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Synthesis Gas from Petroleum Coke	SGP	Assumed to have emissions similar to Natural Gas	Lbs per MMCF	0.60	0.06	0.60	0.60	0.60	0.60	0.60
Agricultural Byproducts	AB	Source: 1	Lbs per ton	0.08	0.01	0.08	0.08	0.08	N/A	N/A
Bituminous Coal*	BIT	Source: 2, Table 1.1-3	Lbs per ton	38.00	3.80	38.00	38.00	38.00	N/A	N/A
Lignite Coal*	LIG	Source: 2, Table 1.7-1	Lbs per ton	30.00	3.00	30.00	30.00	30.00	N/A	N/A
Municipal Solid Waste	MSW	Source: 1	Lbs per ton	1.70	0.17	1.70	1.70	1.70	N/A	N/A
Other Biomass Solids	OBS	Source: 1 (including footnote 11 within source)	Lbs per ton	0.23	0.02	0.23	0.23	0.23	N/A	N/A
Petroleum Coke*	PC	Source: 1	Lbs per ton	39.00	3.90	39.00	39.00	39.00	N/A	N/A
Refined Coal*	RC	Assumed to have the emissions similar to Bituminous Coal.	Lbs per ton	38.00	3.80	38.00	38.00	38.00	N/A	N/A
Subbituminous Coal*	SUB	Source: 2, Table 1.1-3	Lbs per ton	35.00	3.50	35.00	35.00	35.00	N/A	N/A
Tire-Derived Fuel*	TDF	Source: 1 (including footnote 13 within source)	Lbs per ton	38.00	3.80	38.00	38.00	38.00	N/A	N/A
Waste Coal*	WC	Source: 1 (including footnote 20 within source)	Lbs per ton	30.00	3.00	30.00	30.00	30.00	N/A	N/A
Wood Waste Solids	WDS	Source: 1	Lbs per ton	0.29	0.08	0.08	0.29	0.29	N/A	N/A
Black Liquor	BLQ	Source: 1	Lbs per ton **	7.00	0.70	7.00	7.00	7.00	N/A	N/A
Sludge Waste	SLW	Source: 1 (including footnote 11 within source)	Lbs per ton **	2.80	0.28	2.80	2.80	2.80	N/A	N/A

Notes:

* For these fuels, emissions are estimated by multiplying the emissions factor by the physical volume of fuel and the sulfur percentage of the fuel (other fuels do not require the sulfur percentage in the calculation). Note that EIA data do not provide the sulfur content of TDF. The value used (1.56 percent) is from U.S. EPA, Control of Mercury Emissions from Coal-Fired Electric Utility Boilers, April 2002, EPA-600/R-01-109, Table A-11 (available at: <http://www.epa.gov/appcdwww/aptb/EPA-600-R-01-109A.pdf>).

** Although Sludge Waste and Black Liquor consist substantially of liquids, these fuels are measured and reported to EIA in tons.

Sources:

1. Eastern Research Group, Inc. and E.H. Pechan & Associates, Inc., Documentation for the 2002 Electric Generating Unit National Emissions Inventory, Table 6, September 2004. Prepared for the U.S. Environmental Protection Agency, Emission Factor and Inventory Group (D205-01), Emissions, Monitoring and Analysis Division, Research Triangle Park
2. U.S. Environmental Protection Agency, AP 42, Fifth Edition (Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources); available at: <http://www.epa.gov/ttn/chief/ap42/>

Table A.2. Nitrogen Oxides Uncontrolled Emission Factors

Fuel, Code, Source and Emission Units				Combustion System Type / Firing Configuration									
Fuel	EIA Fuel Code	Source and Tables (As Appropriate)	Emissions Units Lbs = Pounds MMCF = Million Cubic Feet MG = Thousand Gallons				Tangential Boiler		All Other Boiler Types		Combustion Turbine	Internal Combustion Engine	
				Cyclone Firing Boiler	Fluidized Bed Firing Boiler	Stoker Boiler	Dry-Bottom Boilers	Wet-Bottom Boilers	Dry-Bottom Boilers	Wet-Bottom Boilers			
Distillate Fuel Oil	DFO	Source: 2, Tables 1.3-1, 3.1-1, & 3.4-1	Lbs per MG	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	122.00	443.80
Jet Fuel	JF	Source: 2, Tables 1.3-1, 3.1-1, & 3.4-1	Lbs per MG	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	118.80	432.00
Kerosene	KER	Source: 2, Tables 1.3-1, 3.1-1, & 3.4-1	Lbs per MG	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	118.80	432.00
Other Biomass Liquids	OBL	Source: 1 (including footnote 3 within source); EIA estimates	Lbs per MG	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	112.30	408.30
Residual Fuel Oil	RFO	Source: 2, Table 1.3-1; EIA estimates	Lbs per MG	47.00	47.00	47.00	32.00	32.00	47.00	47.00	47.00	131.70	479.00
Wood Waste Liquids	WDL	Source: 1 (including footnote 16 within source); EIA estimates	Lbs per MG	5.43	5.43	5.43	5.43	5.43	5.43	5.43	5.43	230.50	838.10
Waste Oil	WO	Source: 2, Table 1.11-2; EIA estimates	Lbs per MG	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	92.20	335.20
Blast Furnace Gas	BFG	Sources: 1 (including footnote 7 within source); EIA estimates	Lbs per MMCF	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	30.40	256.55
Landfill Gas	LFG	Sources: 1 (including footnote 7 within source); EIA estimates	Lbs per MMCF	72.44	72.44	72.44	72.44	72.44	72.44	72.44	72.44	144.00	1,215.22
Natural Gas	NG	Source: 2, Tables 1.4-1, 3.1-1, and 3.4-1	Lbs per MMCF	280.00	280.00	280.00	170.00	170.00	280.00	280.00	280.00	328.00	2,768.00
Other Biomass Gas	OBG	Sources: 1 (including footnote 7 within source); EIA estimates	Lbs per MMCF	112.83	112.83	112.83	112.83	112.83	112.83	112.83	112.83	313.60	2,646.48
Other Gases	OG	Sources: 1 (including footnote 7 within source); EIA estimates	Lbs per MMCF	152.82	152.82	152.82	152.82	152.82	152.82	152.82	152.82	263.82	2,226.41
Other	OTH	Assumed to have emissions similar to Natural Gas.	Lbs per MMCF	280.00	280.00	280.00	170.00	170.00	280.00	280.00	280.00	328.00	2,768.00
Propane Gas	PG	Sources: 3; EIA estimates	Lbs per MMCF	522.26	522.26	522.26	522.26	522.26	522.26	522.26	522.26	803.36	6,779.57
Synthesis Gas from Petroleum Coke	SGC	Assumed to have emissions similar to Natural Gas	Lbs per MMCF	280.00	280.00	280.00	170.00	170.00	280.00	280.00	280.00	328.00	2,768.00
Coal-Derived Synthesis Gas	SGP	Assumed to have emissions similar to Natural Gas	Lbs per MMCF	280.00	280.00	280.00	170.00	170.00	280.00	280.00	280.00	328.00	2,768.00
Agricultural Byproducts	AB	Source: 1	Lbs per ton	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	N/A	N/A
Bituminous Coal	BIT	Source: 2, Table 1.1-3	Lbs per ton	33.00	5.00	11.00	10.00	14.00	12.00	31.00	31.00	N/A	N/A
Lignite Coal	LIG	Source: 2, Table 1.7-1	Lbs per ton	15.00	3.60	5.80	7.10	7.10	6.30	6.30	6.30	N/A	N/A
Municipal Solid Waste	MSW	Source: 1	Lbs per ton	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	N/A	N/A
Other Biomass Solids	OBS	Source: 1 (including footnote 11 within source)	Lbs per ton	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	N/A	N/A
Petroleum Coke	PC	Source: 1 (including footnote 8 within source)	Lbs per ton	21.00	5.00	21.00	21.00	21.00	21.00	21.00	21.00	N/A	N/A
Refined Coal	RC	Assumed to have the emissions similar to Bituminous Coal.	Lbs per ton	33.00	5.00	11.00	10.00	14.00	12.00	31.00	31.00	N/A	N/A
Subbituminous Coal	SUB	Source: 2, Table 1.1-3	Lbs per ton	17.00	5.00	8.80	7.20	7.20	7.40	24.00	24.00	N/A	N/A
Tire-Derived Fuel	TDF	Source: 1 (including footnote 13 within source)	Lbs per ton	33.00	5.00	11.00	10.00	14.00	12.00	31.00	31.00	N/A	N/A
Waste Coal	WC	Source: 1 (including footnote 20 within source)	Lbs per ton	15.00	3.60	5.80	7.10	7.10	6.30	6.30	6.30	N/A	N/A
Wood Waste Solids	WDS	Source: 1	Lbs per ton	2.51	2.00	1.50	2.51	2.51	2.51	2.51	2.51	N/A	N/A
Black Liquor	BLQ	Source: 1	Lbs per ton **	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	N/A	N/A
Sludge Waste	SLW	Source: 1 (including footnote 11 within source)	Lbs per ton **	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	N/A	N/A

Notes:

** Although Sludge Waste and Black Liquor consist substantially of liquids, these fuels are measured and reported to EIA in tons.

Sources:

1. Eastern Research Group, Inc. and E.H. Pechan & Associates, Inc., Documentation for the 2002 Electric Generating Unit National Emissions Inventory, Table 6, September 2004. Prepared for the U.S. Environmental Protection Agency, Emission Factor and Inventory Group (D205-01), Emissions, Monitoring and Analysis Division, Research Triangle Park
2. U.S. Environmental Protection Agency, AP 42, Fifth Edition (Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources); available at: <http://www.epa.gov/ttn/chief/ap42/>
3. U.S. Environmental Protection Agency, Factor Information Retrieval (FIRE) Database, Version 6.25; available at: <http://www.epa.gov/ttn/chief/software/fire/index.html>

Table A.3. Carbon Dioxide Uncontrolled Emission Factors

Fuel	EIA Fuel Code	Factor (Kilograms of CO2 Per Million Btu)**	Notes
Bituminous Coal	BIT	93.30	
Distillate Fuel Oil	DFO	73.16	
Geothermal	GEO	7.71	
Jet Fuel	JF	70.90	
Kerosene	KER	72.30	
Lignite Coal	LIG	97.70	
Municipal Solid Waste	MSW	41.69	
Natural Gas	NG	53.07	
Petroleum Coke	PC	102.10	
Propane Gas	PG	63.07	
Refined Coal	RC	93.30	Assumed to have emissions similar to Bituminous Coal.
Residual Fuel Oil	RFO	78.79	
Synthesis Gas Derived from Coal	SGC		* Factor is based on the fuel source used to produce the synthesis gas
Synthesis Gas Derived from Petroleum Coke	SGP		* Factor is based on the fuel source used to produce the synthesis gas
Subbituminous Coal	SUB	97.20	
Tire-Derived Fuel	TDF	85.97	
Waste Coal	WC	93.30	Assumed to have emissions similar to Bituminous Coal.
Waste Oil	WO	95.25	

Notes:

* Factors for synthesis gas derived from coal and synthesis gas derived from petroleum coke are based on the fuel source used to produce the synthesis gas.

** CO2 factors do not vary by combustion system type or boiler firing configuration.

Source: Energy Information Administration estimates:

http://www.eia.gov/environment/emissions/co2_vol_mass.cfm

Table A.4. Nitrogen Oxides Control Technology Emissions Reduction Factors

Nitrogen Oxides Control Technology	EIA Code	Reduction Factor							
		Coal	Residual Fuel Oil and Distillate Fuel Oil	Natural Gas	Wood	Other Solids	Other Liquids	Other Gases	Other Fuels
Burner Out of Service	BO	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Low Excess Air	LA	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Biased Firing (Alternative Burners)	BF	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Overfire Air	OV	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
Advanced Overfire Air	AA	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
Low NOx Burners	LN	45.00%	45.00%	50.00%	45.00%	45.00%	45.00%	50.00%	45.00%
Fuel Reburning	FU	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%
Selective Noncatalytic Reduction	SN	45.00%	32.50%	32.50%	55.00%	45.00%	32.50%	32.50%	45.00%
Selective Catalytic Reduction	SR	80.00%	80.00%	85.00%	80.00%	80.00%	80.00%	85.00%	80.00%
Ammonia Injection	NH3	62.50%	56.25%	58.75%	67.50%	62.50%	56.25%	58.75%	62.50%
Flue Gas Recirculation	FR	45.00%	45.00%	45.00%	45.00%	45.00%	45.00%	45.00%	45.00%
Water Injection	H2O	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Steam Injection	STM	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Other	OT	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%

Nitrogen Oxides Control Technology	EIA Code	Source of Selected Reduction Factor							
		Coal	Residual Fuel Oil and Distillate Fuel Oil	Natural Gas	Wood	Other Solids	Other Liquids	Other Gases	Other Fuels
Burner Out of Service	BO	Source: 1	Source: 2	Source: 9	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Low Excess Air	LA	Source: 1	Source: 2	Source: 9	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Biased Firing (Alternative Burners)	BF	Source: 1	Source: 2	Source: 9	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Overfire Air	OV	Source: 1	Source: 9	Source: 9	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Advanced Overfire Air	AA	Source: 1	Source: 9	Source: 9	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Low NOx Burners	LN	Source: 1	Source: 2	Source: 3	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Fuel Reburning	FU	Source: 1	Source: 9	Source: 9	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Selective Noncatalytic Reduction	SN	Source: 1	Source: 2	Source: 4	Source: 5	Source: 9	Source: 10	Source: 11	Source: 9
Selective Catalytic Reduction	SR	Source: 1	Source: 2	Source: 4	Source: 9	Source: 9	Source: 10	Source: 11	Source: 9
Ammonia Injection	NH3	Source: 6	Source: 6	Source: 6	Source: 6	Source: 9	Source: 10	Source: 11	Source: 9
Flue Gas Recirculation	FR	Source: 10	Source: 2	Source: 10	Source: 10	Source: 9	Source: 10	Source: 11	Source: 9
Water Injection	H2O	Source: 8	Source: 8	Source: 8	Source: 8	Source: 9	Source: 10	Source: 11	Source: 9
Steam Injection	STM	Source: 8	Source: 8	Source: 8	Source: 8	Source: 9	Source: 10	Source: 11	Source: 9
Other	OT	Source: 7	Source: 7	Source: 7	Source: 7	Source: 9	Source: 10	Source: 11	Source: 9

Source: U.S. Environmental Protection Agency, AP 42, Fifth Edition (Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources); available at: <http://www.epa.gov/ttn/chief/ap42/>

- Source 1: AP-42, Table 1.1-2
- Source 2: AP-42, Section 1.3.4.3 Text
- Source 3: AP-42, Table 1.4-1
- Source 4: AP-42, Section 1.4.4 Text
- Source 5: AP-42, Section 1.6.4 Text
- Source 6: Average of Selective Catalytic Reduction and Selective Noncatalytic Reduction
- Source 7: Minimum of other technologies for fuel group
- Source 8: Matches Other selection
- Source 9: Assumed to have reduction similar to coal
- Source 10: Assumed to have reduction similar to Residual Fuel Oil and Distillate Fuel Oil
- Source 11: Assumed to have reduction similar to natural gas

Notes:
 Coal reduction factors are applied to Bituminous Coal, Subbituminous Coal, Lignite Coal, and Waste Coal.
 Wood reduction factors are applied to Wood Waste Solids, Black Liquor, and Wood Waste Liquids.
 Other Solids reduction factors are applied to Petroleum Coke, Municipal Solid Waste, Tire-Derived Fuels, Sludge Waste, Agricultural Biproducts, and Other Biomass Solids.
 Other Liquids reduction factors are applied to Jet Fuel, Kerosene, Waste Oil, and Other Biomass Liquids.
 Other Gases reduction factors are applied to Blast Furnace Gas, Landfill Gas, Propane Gas, Coal-Derived Synthesis Gas, Synthesis Gas from Petroleum Coke, Other Biomass Gas, and Other Gas.

Table A.5. Unit of Measure Equivalents

Unit	Equivalent
Kilowatt (kW)	1,000 (One Thousand) Watts
Megawatt (MW)	1,000,000 (One Million) Watts
Gigawatt (GW)	1,000,000,000 (One Billion) Watts
Terawatt (TW)	1,000,000,000,000 (One Trillion) Watts
Gigawatt	1,000,000 (One Million) Kilowatts
Thousand Gigawatts	1,000,000,000 (One Billion) Kilowatts
Kilowatthours (kWh)	1,000 (One Thousand) Watthours
Megawatthours (MWh)	1,000,000 (One Million) Watthours
Gigawatthours (GWh)	1,000,000,000 (One Billion) Watthours
Terawatthours (TWh)	1,000,000,000,000 (One Trillion) Watthours
Gigawatthours	1,000,000 (One Million) Kilowatthours
Thousand Gigawatthours	1,000,000,000(One Billion Kilowatthours
U.S. Dollar	1,000 (One Thousand) Mills
U.S. Cent	10 (Ten) Mills
Barrel of Oil	42 Gallons

Source: U.S. Energy Information Administration

Technical Notes

This appendix describes how the U.S. Energy Information Administration collects, estimates, and reports electric power data in the Electric Power Annual.

Data Quality and Submission

The Electric Power Annual (EPA) is prepared by the Office of Electricity, Renewables, and Uranium Statistics (ERUS), U.S. Energy Information Administration (EIA), U.S. Department of Energy (DOE). ERUS performs routine reviews of the data collection respondent frames, survey forms, and reviews the quality of the data received.

Data are entered directly by respondents into the ERUS Internet Data Collection (IDC) system. A small number of hard copy forms are keyed into the system by ERUS personnel. All data are subject to review via interactive edits built into the IDC system, internal quality assurance reports, and review by ERUS subject matter experts. Questionable data values are verified through contacts with respondents, and survey non-respondents are identified and contacted.

IDC edits include both deterministic checks, in which records are checked for the presence of data in required fields, and statistical checks, in which the data are checked against a range of values based on historical data values and for logical or mathematical consistency with data elements reported in the survey. Discrepancies found in the data, as a result of these checks, must either be corrected by the respondent or the respondent must enter an explanation as to why the data are correct. If these explanations are unsatisfactory the respondent is contacted by EIA for clarification or corrected data.

Those respondents unable to use the electronic reporting method provide the data in hard copy, typically via fax and email. These data are manually entered into the computerized database and are subjected to the same data edits as those performed during e-filing by the respondent.

Reliability of Data

Annual survey data have non-sampling errors. Non-sampling errors can be attributed to many sources: (1) inability to obtain complete information about all cases (i.e., non-response); (2) response errors; (3) definitional difficulties; (4) differences in the interpretation of questions; (5) mistakes in recording or coding the data; and (6) other errors of collection, response, coverage, and estimation for missing data.

Although no direct measurement of the biases due to non-sampling errors can be obtained, precautionary steps were taken in all phases of the frame development and data collection, processing, and tabulation processes to minimize their influence.

Imputation: If the reported values appear to be in error and the data issue cannot be resolved with the respondent, or if the facility is a non-respondent, a regression methodology is used to impute for the facility. The regression methodology relies on other data to make estimates for erroneous or missing responses. The basis for the current methodology involves a 'borrowing of strength' technique for small domains.¹

Data Revision Procedure

The EPA presents the most current and complete data available to the EIA. The statistics may differ from those published previously in EIA publications due to corrections, revisions, or other adjustments to the data subsequent to its original release.

After data are disseminated as final, revisions will be considered if a correction would make a difference of 1 percent or greater at the national level. Revisions for differences that do not meet the 1 percent or greater threshold will be determined by the Office Director. In either case, the proposed revision will be subject to the EIA revision policy concerning how it affects other EIA products.

Sensitive Data (Formerly Identified as Data Confidentiality): Most of the data collected on the electric power surveys are not considered business sensitive. However, the data that are classified as sensitive are handled by ERUS consistent with EIA's "Policy on the Disclosure of Individually Identifiable Energy Information in the Possession of the EIA" (45 Federal Register 59812 (1980)).

Rounding and Percent Change Calculations

Rounding Rules for Data: To round a number to n digits (decimal places), add one unit to the n th digit if the $(n+1)$ digit is 5 or larger and keep the n th digit unchanged if the $(n+1)$ digit is less than 5. The symbol for a number rounded to zero is (*).

Percent Change: The following formula is used to calculate percent changes:

$$\text{Percent Change} = \left(\frac{x(t_2) - x(t_1)}{x(t_1)} \right) \times 100,$$

where $x(t_1)$ and $x(t_2)$ denote the quantity at period t_1 and subsequent period t_2 .

Data Sources for Electric Power Annual

Data published in the EPA are compiled from forms filed annually or aggregated to an annual basis from monthly forms (see figure on EIA Electric Industry Data Collection in Appendix A). The respondents to these forms include electric utilities, other generators and sellers of electricity, and North American Electric Reliability Corporation (NERC) reliability entities. The EIA forms used are:

- Form EIA-411, "Coordinated Bulk Power Supply Program Report;"
- Form EIA-860, "Annual Electric Generator Report;"
- Form EIA-861, "Annual Electric Power Industry Report;"
- Form EIA-861M, "Monthly Electric Power Industry Report;"
- Form EIA-861S, "Annual Electric Power Industry Report (Short Form);"
- Form EIA-923, "Power Plant Operations Report."

These forms can be found on the EIA Internet website at:

<http://www.eia.gov/cneaf/electricity/page/forms.html>.

Survey data from other Federal sources are also utilized for this publication. They include:

- FERC Form 1, “Annual Report of Major Electric Utilities, Licensees, and Others;”
- U. S. Department of Agriculture (USDA) Rural Utility Service Form 7, “Financial and Statistical Report;” and
- USDA Rural Utility Service Form 12, “Operating Report – Financial.”

In addition to the above-named forms, the historical data published in the EPA are compiled from the following inactive forms:

- Form EIA-412, “Annual Electric Industry Financial Report,” FERC Form 423, “Cost and Quality of Fuels for Electric Plants,”
- Form EIA-423, “Monthly Cost and Quality of Fuels for Electric Plants Report;”
- Form EIA-759, “Monthly Power Plant Report,”
- Form EIA-767, “Steam-Electric Plant Operation and Design Report;”
- Form EIA-826, “ Monthly Electric Utility Sales and Revenues with State Distributions Report;”
- Form EIA-860A, “Annual Electric Generator Report–Utility,”
- Form EIA-860B, “Annual Electric Generator Report–Nonutility,”
- Form EIA-867, “Annual Nonutility Power Producer Report,”
- Form EIA-900, “Monthly Nonutility Power Report,”
- Form EIA-906, “Power Plant Report;” and
- Form EIA-920, “Combined Heat and Power Plant Report.”

Additionally, some data reported in this publication were acquired from public reports of the National Energy Board of Canada on electricity imports and exports.

Meanings of Symbols Appearing in Tables: The following symbols have the meaning described below:

- * The value reported is less than half of the smallest unit of measure, but is greater than zero.
- P Indicates a preliminary value.
- W Withheld to avoid disclosure of individual company data.
- NM Data value is not meaningful, either (1) when compared to the same value for the previous time period, or (2) when a data value is not meaningful due to having a high Relative Standard Error (RSE).
- (*) Usage of this symbol indicates a number rounded to zero.

Form EIA-411

The information reported on the mandatory Form EIA-411 includes: (1) actual energy and peak demand for the preceding year and five additional years; (2) existing and future generating capacity and capacity reserve margins; (3) scheduled capacity transfers; (4) projections of capacity, demand, purchases, sales, and scheduled maintenance; (5) power flow cases; and (6) bulk power system maps. The data is collected for EIA by NERC from NERC regional reliability entities, which in turn aggregate reports from regional members. Non-member data is also included. The compiled data is reviewed and edited by

NERC and submitted to EIA annually on July 15. The data undergoes additional review by EIA. EIA resolves any quality issues with NERC.

Instrument and Design History: The Form EIA-411 program was initiated under the Federal Power Commission (FPC) Docket R-362, Reliability and Adequacy of Electric Service, and Orders 383-2, 383-3, and 383-4. The DOE, established in October 1977, assumed the responsibility for this activity. The responsibility for collecting these data was delegated to the Office of Emergency Planning and Operations within the DOE and was transferred to EIA for the reporting year 1996. Until 2008, this form was voluntary. The data are collected under the authority of the Federal Power Act (Public Law 88-280), the Federal Energy Administration Act of 1974 (Public Law 93-275), and the DOE Organization Act (Public Law 95-91).

Issues within Historical Data Series: The Florida Reliability Coordinating Council (FRCC) separated itself from the Southeastern Electric Reliability Council (SERC) in the mid-1990s and all time-series data have been adjusted. In 1998, several utilities realigned from Southwest Power Pool (SPP) to SERC. Adjustments were made to the information to account for the separation and to address the tracking of shared reserve capacity that was under long-term contracts with multiple members. Name changes altered the Mid-Continent Area Power Pool (MAPP) to the Midwest Reliability Organization (MRO) and the Western Systems Coordinating Council (WSCC) to the Western Electricity Coordinating Council (WECC). The MRO membership boundaries have altered over time, but WECC membership boundaries have not. The utilities in the associated regional entity identified as the Alaska System Coordination Council (ASCC) dropped their formal participation in NERC. (Alaska and, obviously, Hawaii are not electrically interconnected with the coterminous 48 States).

At the close of calendar year 2005, the following reliability regional councils were dissolved: East Central Area Reliability Coordination Agreement (ECAR), Mid-Atlantic Area Council (MAAC), and Mid-America Interconnected Network (MAIN). On January 1, 2006, the ReliabilityFirst Corporation (RFC) came into existence as a new regional reliability council. Individual utility membership in the former ECAR, MAAC, and MAIN councils mostly shifted to RFC. However, adjustments in membership, as utilities joined or left various reliability councils, impacted MRO, SERC, and SPP. The Texas Regional Entity (TRE) was formed to handle the regional reliability responsibilities of the Electric Reliability Council of Texas (ERCOT). The revised delegation agreements covering all the regions were approved by the FERC on March 21, 2008. Reliability Councils that are unchanged include: Florida Reliability Coordinating Council (FRCC), Northeast Power Coordinating Council (NPCC), and the Western Electricity Coordinating Council (WECC). The historical time series have not been adjusted to account for individual membership shifts.

The current NERC regional entity names are as follows:

- Florida Reliability Coordinating Council (FRCC),
- Midwest Reliability Organization (MRO),
- Northeast Power Coordinating Council (NPCC),
- ReliabilityFirst Corporation (RFC),
- Southeastern Electric Reliability Council (SERC),

- Southwest Power Pool (SPP),
- Texas Regional Entity (TRE), and
- Western Energy Coordinating Council (WECC).

Changes Introduced in 2011: Starting in 2011, NERC modified the bulk power system reporting regions (in contrast to regional reliability entity organizational boundaries) to align them with electric market operations. Consequently, reliability data will be reported for the PJM and MISO regional transmission organization areas and the MAPP area rather than for the MRO and RFC regional areas. This new framework, along with the other NERC regions, now forms the bulk power system reliability assessment areas.

Historically the MRO, RFC, SERC, and SPP regional boundaries were altered as utilities changed reliability organizations. In published EIA reports the historical data series for these regions have not been adjusted. Instead, starting in 2011, EIA has introduced the Balance of Eastern Region category to provide a consistent trend for the Eastern interconnection.

Concept of Demand within the EIA-411: The EIA-411 uses the following categorization of electricity demand:

- **Net Internal Demand:** Internal Demand less Direct Control Load Management and Interruptible Demand.
- **Internal Demand:** To collect these data, NERC develops a Total Internal Demand that is the sum of the metered (net) outputs of all generators within the system and the metered line flows into the system, less the metered line flows out of the system. The demand of station service or auxiliary needs (such as fan motors, pump motors, and other equipment essential to the operation of the generating units) is not included nor are any requirement customer (utility) load or capacity found behind the line meters on the system.
- **Direct Control Load Management:** Demand-Side Management that is under the direct control of the system operator. DCLM may control the electric supply to individual appliances or equipment on customer premises; it does not include Interruptible Demand.
- **Interruptible Demand:** The magnitude of customer demand that, in accordance with contractual arrangements, can be interrupted at the time of the Regional Council's seasonal peak by direct control of the System Operator or by action of the customer at the direct request of the System Operator.

For additional information on demand, refer to the NERC's Long-Term Reliability Assessments at <http://www.nerc.com/page.php?cid=4|61>.

Sensitive Data: Power flow cases and maps are considered business sensitive.

Form EIA-412 (Terminated)

The Form EIA-412 was used annually to collect accounting, financial, and operating data from publicly owned electric utilities engaged in the generation, transmission, or distribution of electricity which had

150,000 megawatthours of sales to ultimate consumers and/or 150,000 megawatthours of sales for resale for the two previous years. Data was collected annually.

Beginning with the 2001 data collection, the plant statistics reported on Schedule 9 were also collected from unregulated entities that own plants with a nameplate capacity of 10 megawatts or greater. Beginning with the 2003 collection, the transmission data reported in Schedules 10 and 11 were collected from each generation and transmission cooperative owning transmission lines having a nominal voltage of 132 kilovolts or greater.

Instrument and Design History: The FPC created the FPC Form 1M in 1961 as a mandatory survey. It became the responsibility of the EIA in October 1977 when the FPC was merged with DOE and renamed the Federal Energy Regulatory Commission (FERC). In 1979, the FPC Form 1M was superseded by the Economic Regulatory Administration (ERA) Form ERA-412 and in January 1980 by the Form EIA-412.

The criteria used to select the respondents for this survey fit approximately 500 publicly owned electric utilities. Federal electric utilities were required to file the Form EIA-412. The financial data for the U.S. Army Corps of Engineers (except for Saint Mary's Falls at Sault Ste. Marie, Michigan); the U.S. Department of Interior, Bureau of Reclamation; and the U.S. International Boundary and Water Commission were collected on the Form EIA-412 from the Federal power marketing administrations. The form was terminated after the 2003 data year.

Issues within Historical Data Series: For 2001 - 2003, the California Department of Water Resources (CDWR) Electric Energy Fund data were included in the EIA-412 data tables. In response to the energy shortfall in California, in 2001 the California State legislature authorized the CDWR, using its undamaged borrowing capability, to enter the wholesale markets on behalf of the California retail customers effective on January 17, 2001 and for the period ending December 31, 2002. Their 2001 revenue collected was \$5,501,000,000 with purchased power costs of \$12,055,000,000. Their 2002 revenue collected was \$4,210,000,000 with purchased power costs of \$3,827,749,811. Their 2003 revenue collected was \$4,627,000,000 with purchased power costs of \$4,732,000,000. The California Public Utility Commission was required by statute to establish the procedures for retail revenue recovery mechanisms for their purchase power costs in the future.

Sensitive Data: The nonutility data collected on Schedule 9 "Electric Generating Plant Statistics" for "Cost of Plant" and "Production Expenses," are considered business sensitive. .

Form EIA-423 (Replaced in 2008 by the Form EIA-923)

The Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report," collected the cost and quality of fossil fuels delivered to nonutility plants to produce electricity. These plants included independent power producers (including those facilities that formerly reported on the FERC Form 423) and commercial and industrial combined heat and power (CHP) producers whose total fossil-fueled nameplate generating capacity was 50 or more megawatts (MW). (CHP plants are sometimes referred to as co-generators. They produce heat, such as steam for use in a manufacturing process, along with electricity).

Instrument and Design History: The Form EIA-423² was implemented in January 2002 to collect monthly cost and quality data for fossil fuel receipts from owners or operators of nonutility electricity generating plants. It was terminated on January 1, 2008, and replaced by the Form EIA-923, "Power Plant Operations Report."

Issues within Historical Data Series: Natural gas values do not include blast furnace gas or other gas.

Sensitive Data: Plant fuel cost data collected on the survey are considered business sensitive. State- and national-level aggregations are published if sufficient data are available to avoid disclosure of individual company and plant level costs.

FERC Form 423 (Replaced in 2008 by Form EIA-923)

The FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants," was administered by FERC. The data were downloaded from the Commission's website into an EIA database. The Form was filed by approximately 600 regulated plants. To meet the criteria for filing, a plant must have had a total steam turbine electric generating capacity and/or combined-cycle (gas turbine with associated steam turbine) generating capacity of 50 or more megawatts. Only fuel delivered for use in steam-turbine and combined-cycle units was reported. Fuel received for use in gas-turbine or internal-combustion units that was not associated with a combined-cycle operation was not reported. The FERC Form 423 was replaced after 2007 by the Form EIA-923.

Instrument and Design History: On July 7, 1972, the FPC issued Order Number 453 enacting the New Code of Federal Regulations, Section 141.61, creating the FPC Form 423. Originally, the form was used to collect data only on fossil steam plants, but was amended in 1974 to include data on internal-combustion and combustion-turbine units. When DOE was formed in 1977, most of FPC became FERC. The FERC Form 423 replaced the FPC Form 423 in January 1983. The FERC Form 423 dropped stand-alone combustion turbines. In addition, the generator nameplate capacity threshold was changed from 25 megawatts to 50 megawatts. This reduction in coverage eliminated approximately 50 utilities and 250 plants. All historical FPC Form 423 data in this publication were revised to reflect the new generator-nameplate-capacity threshold of 50 or more megawatts reported on the FERC Form 423. In January 1991, the collection of data on the FERC Form 423 was extended to include combined cycle units. Historical data have not been revised to include these units. On January 1, 2008, EIA assumed responsibility for collection of these data and both the utility and nonutility plants began to report their cost and quality of fuels information on Schedule 2 of Form EIA-923, "Power Plant Operations Report."

Issues within Historical Data Series: These data were collected by FERC for regulatory rather than statistical and publication purposes. EIA did not attempt to resolve any late filing issues in the FERC Form 423 survey. The data were quality reviewed by EIA and when possible quality issues were resolved with FERC.

Natural gas values for 2001 forward do not include blast furnace gas or other gas.

Due to the estimation procedure described below in the discussion of the Form EIA-923, 2003 and later data cannot be directly compared to previous years' data.

Sensitive Data: Data collected on FERC Form 423 are not business sensitive.

Form EIA-767 (Replaced by Forms EIA-860 and EIA-923)

The Form EIA-767 was used to collect data annually on plant operations and equipment design, including boiler, generator, cooling system, air pollution control equipment, and stack characteristics. Data were collected from a mandatory restricted-universe census of all electric power plants with a total existing or planned organic-fueled or combustible renewable steam-electric generator nameplate rating of 10 or more megawatts. The entire form was filed by approximately 800 power plants with a nameplate capacity of 100 or more megawatts. An additional 600 power plants with a nameplate capacity under 100 megawatts submitted information only on fuel consumption and quality, boiler and generator configuration, and nitrogen oxides, mercury, particulate matter, and sulfur dioxide controls.

Instrument and Design History: The Federal Energy Administration Act of 1974 (Public Law 93-275) defines the legislative authority to collect these data. The predecessor form, FPC-67, "Steam-Electric Plant Air and Water Quality Control Data," was used to collect data from 1969 to 1980, when the form number was changed to Form EIA-767. In 1982, the form was completely redesigned and re-titled Form EIA-767, "Steam-Electric Plant Operation and Design Report." In 1986, the respondent universe of 700 plants was increased to 900 plants to include plants with nameplate capacity from 10 megawatts to 100 megawatts. In 2002, the respondent universe was increased by almost 1,370 plants with the addition of nonutility plants.

Collection of data via the form was suspended for the 2006 data year. Starting with the collection of 2007 calendar year data, most of the Form EIA-767 information is now collected on either the revised Form EIA-860, "Annual Electric Generator Report" or the new Form EIA-923, "Power Plant Operations Report."

Estimation of EIA-767 Data: No estimation of Form EIA-767 data was performed. Normally the survey had no non-response.

Issues within Historical Data Series: As noted above, no data were collected for calendar year 2006.

Sensitive Data: Latitude and longitude data collected on the Form EIA-767 were considered business sensitive.

Form EIA-861M (Formerly the EIA-826)

The Form EIA 861M, "Monthly Electric Power Industry Report," is a monthly collection of data from a sample of approximately 520 of the largest electric utilities (primarily investor and publicly owned) as well as a census of energy service providers with sales to ultimate consumers in deregulated States. Form EIA-861 (see below), with approximately 3,300 respondents, serves as a frame from which the Form 826 sample is drawn. Based on this sample, a model is used to estimate for the entire universe of U.S. electric utilities on a monthly basis.

Instrument and design history: The collection of electric power sales data and related information began in the early 1940's and was established as FPC Form 5 by FPC Order 141 in 1947. In 1980, the report was revised with only selected income items remaining and became the FERC Form 5. The Form

EIA 826, “Electric Utility Company Monthly Statement,” replaced the FERC Form 5 in January 1983. In January 1987, the “Electric Utility Company Monthly Statement” was changed to the “Monthly Electric Utility Sales and Revenue Report with State Distributions.” The title was changed again in January 2002 to “Monthly Electric Utility Sales and Revenues with State Distributions Report” to become consistent with other EIA report titles. The Form EIA 826 was revised in January 1990, and some data elements were eliminated.

In 1993, EIA for the first time used a model sample for the Form EIA 826. A stratified random sample, employing auxiliary data, was used for each of the four previous years. The sample for the Form EIA 826 was designed to obtain estimates of electricity sales and average retail price of electricity at the State level by end use sector.

Starting with data for January 2001, the restructuring of the electric power industry was taken into account by forming three schedules on the Form EIA-826. Schedule 1, Part A is for full service utilities that operate as in the past. Schedule 1, Part B is for electric service providers only, and Schedule 1, Part C is for those utilities providing distribution service for those on Schedule 1, Part B. In addition, Schedule 1 Part D is for those retail energy providers or power marketers that provide bundled service. Also, the Form EIA-826 frame was modified to include all investor-owned electric utilities and a sample of companies from other ownership classes. A new method of estimation was implemented at this same time. (See *Electric Power Monthly*, April 2001, p.1.)

With the October 2004 issue of the *Electric Power Monthly* (EPM), EIA published for the first time preliminary electricity sales data for the Transportation Sector. These data are for electricity delivered to and consumed by local, regional, and metropolitan transportation systems. The data being published for the first time in the October EPM included July 2004 data as well as year-to-date. EIA’s efforts to develop these new data have identified anomalies in several States and the District of Columbia. Some of these anomalies are caused by issues such as: 1) Some respondents have classified themselves as outside the realm of the survey. The Form EIA-826 collects retail data from those respondents providing electricity and other services to the ultimate end users. EIA has experienced specific situations where, although the respondents’ customers are the ultimate end users, particular end users qualify under wholesale rate schedules. 2) The Form EIA-826 is a cutoff sample and not intended to be a census.

Data processing and data system editing: Monthly Form EIA-861M submission is available via an Internet Data Collection (IDC) system. The completed data are due to EIA by the last calendar day of the month following the reporting month. Nonrespondents are contacted to obtain the data. The data are edited and additional checks are completed. Following verification, imputation is run, and tables and text of the aggregated data are produced for inclusion in the EPM.

Imputation: Regression prediction, or imputation, is done for entities not in the monthly sample and for any nonrespondents. Regressor data for Schedule 1, Part A is the average monthly sales or revenue from the most recent finalized data from survey Form EIA-861. Beginning with January 2008 data and the finalized 2007 data, the regressor data for Schedule 1 Parts B and C is the prior month’s data.

Formulas and methodologies: The Form EIA 861M data are collected by end-use sector (residential, commercial, industrial, and transportation) and State. Form EIA 861 (see below) data are used as the

frame from which the sample is selected and in some instances also as regressor data. Updates are made to the frame to reflect mergers that affect data processing.

With the revised definitions for the commercial and industrial sectors to include all data previously reported as 'other' data except transportation, and a separate transportation sector, all responses that would formerly have been reported under the "other" sector are now to be reported under one of the sectors that currently exist. This means there is probably a lower correlation, in general, between, say, commercial Form EIA-826 data for 2004 and commercial Form EIA-861 data for 2003 than there was between commercial Form EIA-826 data for 2003 and commercial Form EIA-861 data for 2002 or earlier years, although commercial and industrial definitions have always been somewhat nebulous due to power companies not having complete information on all customers.

Data submitted for January 2004 represent the first time respondents were to provide data specifically for the transportation end-use sector.

During 2003 transportation data were collected annually through Form EIA-861. Beginning in 2004 the transportation data were collected on a monthly basis via Form EIA-826. In order to develop an estimate of the monthly transportation data for 2003, values for both sales of electricity to ultimate customers and revenue from sales of electricity to ultimate customers were estimated using the 2004 monthly profile for the sales and revenues from the data collected via Form EIA-826. All monthly non-transportation data for 2003 (i.e. street lighting, etc.), which were previously reported in the "other" end-use sector on the Form EIA-826 have been prorated into the Commercial and Industrial end-use sectors based on the 2003 Form EIA-861 profile.

A monthly distribution factor was developed for the monthly data collected in 2004 (for the months of January through November). The transportation sales and revenues for December 2004 were assumed to be equivalent to the transportation sales and revenues for November 2004. The monthly distribution factors for January through November were applied to the annual values for transportation sales and revenues collected via Form EIA-861 to develop corresponding 2003 monthly values. The eleven month estimated totals from January through November 2003 were subtracted from the annual values obtained from Form EIA-861 in order to obtain the December 2003 values.

Data from the Form EIA-861M are used to determine estimates by sector at the State, Census division, and national level. State level sales and revenues estimates are first calculated. Then the ratio of revenue divided by sales is calculated to estimate retail price of electricity at the State level. The estimates are accumulated separately to produce the Census division and U.S. level estimates³.

Some electric utilities provide service in more than one State. To facilitate the estimation, the State service area is actually used as the sampling unit. For each State served by each utility, there is a utility State part, or "State service area." This approach allows for an explicit calculation of estimates for sales, revenue, and average retail price of electricity by end use sector at State, Census division, and national level. Estimation procedures include imputation to account for nonresponse. Non-sampling error must also be considered. The non-sampling error is not estimated directly, although attempts are made to minimize the non-sampling error.

Average retail price of electricity represents the cost per unit of electricity sold and is calculated by dividing retail electric revenue by the corresponding sales of electricity. The average retail price of electricity is calculated for all consumers and for each end-use sector.

The electric revenue used to calculate the average retail price of electricity is the operating revenue reported by the electric utility. Operating revenue includes energy charges, demand charges, consumer service charges, environmental surcharges, fuel adjustments, and other miscellaneous charges. Electric utility operating revenues also include State and Federal income taxes and taxes other than income taxes paid by the utility.

The average retail price of electricity reported in this publication by sector represents a weighted average of consumer revenue and sales within sectors and across sectors for all consumers, and does not reflect the per kWh rate charged by the electric utility to the individual consumers. Electric utilities typically employ a number of rate schedules within a single sector. These alternative rate schedules reflect the varying consumption levels and patterns of consumers and their associated impact on the costs to the electric utility for providing electrical service.

Adjusting monthly data to annual data: As a final adjustment based on our most complete data, use is made of final Form EIA-861 data, when available. The annual totals for Form EIA-826 data by State and end-use sector are compared to the corresponding Form EIA-861 values for sales and revenue. The ratio of these two values in each case is then used to adjust each corresponding monthly value.

Sensitive data: Most of the data collected on the Form EIA-861M are not considered business sensitive. However, monthly revenue, sales, and customer data collected from energy service providers (Schedule 1, Part B), which do not also provide energy delivery, are considered business sensitive and must adhere to EIA's "Policy on the Disclosure of Individually Identifiable Energy Information in the Possession of the EIA" (45Federal Register 59812 (1980)).

Form EIA-860

The Form EIA-860 is a mandatory annual census of all existing and planned electric generating facilities in the United States with a total generator nameplate capacity of 1 or more megawatts. The survey is used to collect data on existing power plants and 10 year plans for constructing new plants, as well as generating unit additions, modifications, and retirements in existing plants. Data on the survey are collected at the individual generator level. Certain power plant environmental-related data are collected at the boiler level. These data include environmental equipment design parameters and boiler air emission standards and boiler emission controls.

Instrument and Design History: The Form EIA-860 was originally implemented in January 1985 to collect plant data on electric utilities as of year-end 1984. It was preceded by several Federal Power Commission (FPC) forms including the FPC Form 4, Form 12 and 12E, Form 67, and Form 411. In January 1999, the Form EIA-860 was renamed the Form EIA-860A and was implemented to collect data as of January 1, 1999.

In 1989, the Form EIA-867, "Annual Nonutility Power Producer Report," was initiated to collect plant data on unregulated entities with a total generator nameplate capacity of 5 or more megawatts. In

1992, the reporting threshold of the Form EIA-867 was lowered to include all facilities with a combined nameplate capacity of 1 or more megawatts. Previously, data were collected every 3 years from facilities with a nameplate capacity between 1 and 5 megawatts. In 1998, the Form EIA-867, was renamed Form EIA-860B, "Annual Electric Generator Report – Nonutility." The Form EIA-860B was a mandatory survey of all existing and planned nonutility electric generating facilities in the United States with a total generator nameplate capacity of 1 or more megawatts.

Beginning with data collected for the year 2001, the infrastructure data collected on the Form EIA-860A and the Form EIA-860B were combined into the new Form EIA-860 and the monthly and annual versions of the Form EIA-906. The Federal Energy Administration Act of 1974 (Public Law 93-275) defines the legislative authority to collect these data.

Starting with 2007, design parameters data formerly collected on Form EIA-767 were collected on Form EIA-860. These include design parameters associated with certain steam-electric plants' boilers, cooling systems, flue gas particulate collectors, flue gas desulfurization units, and stacks and flues.

Estimation of EIA-860 Data: No imputation was required for EIA-860 data.

Issues within Historical Data Series Regarding Categorization of Capacity by Business Sector: There are a small number of electric utility CHP plants, as well as a small number of industrial and commercial generating facilities that are not CHP. For the purposes of this report the data for these plants are included, respectively, in the following categories: "Electricity Generators, Electric Utilities," "Combined Heat and Power, Industrial," and "Combined Heat and Power, Commercial."

Some capacity in 2001 through 2004 is classified based on the operating company's classification as an electric utility or an independent power producer. Starting in the EPA 2006, capacity by producer type was determined at the power plant level for 2005 and all subsequent data collections. This change required revisions to the original published 2005 data.

Issues within Historical Data Series Regarding Planned Capacity: Delays and cancellations may have occurred subsequent to respondent data reporting as of December 31 of the data year.

Issues within Historical Data Series Regarding Capacity by Energy Source: Prior to the EPA 2005, the capacity for generators for which natural gas or petroleum was the most predominant energy source was presented in the following three categories: petroleum only, natural gas only, and dual-fired. The dual-fired category, which was EIA's effort to infer which generators could fuel-switch between natural gas and fuel oil, included only the capacity of generators for which the most predominant energy source and second most predominant energy source were reported as natural gas or petroleum. Beginning in 2005, capacity is assigned to energy source based solely on the most predominant (primary) energy source reported for a generator. The "dual-fired" category was eliminated. Separately, summaries of capacity associated with generators with fuel-switching capability are presented for 2005 and later years. These summaries are based on data collected from new questions added to the Form EIA-860 survey that directly address the ability of generators to switch fuels and co-fire fuels.

In the EPA 2005, certain petroleum-fired capacity was misclassified as natural gas-fired capacity for 1995 – 2003. This was corrected in the EPA 2006. Corrections were noted as revised data.

Prime Movers: The Form EIA-860 sometimes represents a generator’s prime mover by using the abbreviations in the table below.

Prime Mover Code	Prime Mover Description
BA	Energy Storage, Battery
CE	Energy Storage, Compressed Air
CP	Energy Storage, Concentrated Solar Power
FW	Energy Storage, Flywheel
PS	Energy Storage, Reversible Hydraulic Turbine (Pumped Storage)
ES	Energy Storage, Other
ST	Steam Turbine, including nuclear, geothermal and solar steam (does not include combined cycle)
GT	Combustion (Gas) Turbine (including jet engine design)
IC	Internal Combustion Engine (diesel, piston, reciprocating)
CA	Combined Cycle Steam Part
CT	Combined Cycle Combustion Turbine Part
CS	Combined Cycle Single Shaft
CC	Combined Cycle Total Unit
HA	Hydrokinetic, Axial Flow Turbine
HB	Hydrokinetic, Wave Buoy
HK	Hydrokinetic, Other
HY	Hydroelectric Turbine (including turbines associated with delivery of water by pipeline)
BT	Turbines Used in a Binary Cycle (including those used for geothermal applications)
PV	Photovoltaic
WT	Wind Turbine, Onshore
WS	Wind Turbine, Offshore
FC	Fuel Cell
OT	Other

Energy Sources: The Form EIA-860 sometimes represents the energy sources associated with generators by using the abbreviations and/or groupings in the table below.

Energy Source Grouping	Energy Source	
	Code	Energy Source Description
Coal	ANT	Anthracite Coal
	BIT	Bituminous Coal
	LIG	Lignite Coal
	SUB	Subbituminous Coal
	SGC	Coal-Derived Synthesis Gas
	WC	Waste/Other Coal (including anthracite culm, bituminous gob, fine coal, lignite waste, waste coal)
Petroleum Products	DFO	Distillate Fuel Oil (including diesel, No. 1, No. 2, and No. 4 fuel oils)
	JF	Jet Fuel
	KER	Kerosene
	PC	Petroleum Coke
	PG	Gaseous Propane
	RFO	Residual Fuel Oil (including No. 5, and No. 6 fuel oils, and bunker C fuel oil)
	SG	Synthesis Gas from Petroleum Coke
	WO	Waste/Other Oil (including crude oil, liquid butane, liquid propane, naphtha, oil waste, re-refined motor oil, sludge oil, tar oil, or other petroleum-based liquid wastes)
Natural Gas and Other Gases	BFG	Blast Furnace Gas
	NG	Natural Gas
	OG	Other Gas
Nuclear	NUC	Nuclear (including Uranium, Plutonium, and Thorium)
Hydroelectric Conventional	WAT (Prime Mover = HY)	Water at a Conventional Hydroelectric Turbine, and water used in Wave Buoy Hydrokinetic Technology, Current Hydrokinetic Technology, and Tidal Hydrokinetic Technology
	WAT (Prime Mover = PS)	Pumping Energy for Reversible (Pumped Storage) Hydroelectric Turbine
Wood and Wood-Derived Fuels	WDS	Wood/Wood Waste Solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids)
	WDL	Wood Waste Liquids (excluding Black Liquor but including red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids)
	BLQ	Black Liquor
Other Biomass	AB	Agricultural By-Products
	MSW	Municipal Solid Waste
	OBG	Other Biomass Gas (including digester gas, methane, and other biomass gases)
	OBL	Other Biomass Liquids
	OBS	Other Biomass Solids
	LFG	Landfill Gas
	SLW	Sludge Waste
	SUN	Solar (including solar thermal)
Other Renewable Energy Sources	WND	Wind
	GEO	Geothermal
	PUR	Purchased Steam
Other Energy Sources	WH	Waste heat not directly attributed to a fuel source
	TDF	Tire-Derived Fuels
	MWH	Electricity used for energy storage
	OTH	Other

Sensitive Data: The tested heat rate data collected on the Form EIA-860 are considered business sensitive.

Form EIA-861

The Form EIA-861 is a mandatory annual census of electric power industry participants in the United States. Prior to data year 2012, the survey was used to collect information on power sales and revenue data from approximately 3,300 respondents. About 3,100 are electric utilities, and the remainders are nontraditional entities such as energy service providers or the unregulated subsidiaries of electric utilities and power marketers.

For data year 2012 and forward, EIA modified the frame of the Form EIA-861, “Annual Electric Power Industry Report,” from a census to a sample, and EIA is using model-based methods to estimate the sales, revenues, and customer counts by sector and state for those respondents that have been removed from the frame. EIA created a new Form EIA-861S, “Annual Electric Power Industry Report (Short Form),” for the respondents that have been removed from the Form EIA-861 frame. Respondents removed from the EIA-861 frame and placed on the EIA-861S tend to be smaller utilities with annual sales volumes not exceeding 100,000 megawatthours (MWhs). Form EIA-861S with fewer data elements compared to the EIA-861, collects limited data on total sales, revenues, and customer counts by state. Every eighth data year, EIA-861S respondents are required to fill out the full EIA-861 form. For data year 2019, EIA-861S respondents were required to complete the full EIA-861 form.

Transportation Sector: Prior to 2003, sales of electric power for transportation (e.g., city subway systems) were included in the Other Sector, along with sales to customers for public buildings, traffic signals and public street lighting. Beginning with the 2003 data collection, sales to the Transportation Sector were collected separately. The balance of the Other Sector was reclassified as Commercial Sector.

On the Form EIA-861, the Transportation Sector is defined as electrified rail, primarily urban transit, light rail, automated guideway, and other rail systems whose primary propulsive energy source is electricity. Electricity sales to Transportation Sector consumers whose primary propulsive energy source is not electricity (i.e., gasoline, diesel fuel, etc.) are not included.

Benchmark statistics were reviewed from outside surveys, most notably the U.S. Department of Transportation (DOT) Federal Transit Administration’s National Transportation Database, a source previously used by EIA to estimate electricity transportation consumption. The DOT survey indicated the State and City locations of expected respondents. The Form EIA-861 survey methodology assumed that sales, revenue, and customer counts associated with these mass transit systems would be provided by the incumbent utilities in these areas, relying on information drawn routinely from rate schedules and classifications designed to serve the sector separately and distinctly. In 2010, 64 respondents reported transportation data in 28 States.

Data Reconciliation: The Electric Power Annual reports total sales volumes (megawatthours) of electricity to ultimate consumers and customer counts in States with deregulated markets as the sum of bundled sales reported by full-service providers and delivery reported by transmission and distribution utilities. ERUS has concluded that the sales of electricity to ultimate consumers data reported by delivery utilities are more reliable than data reported by power marketers and Energy Service Providers (ESPs).

The reporting methodology change uses sales volumes and a customer count reported by distribution utilities, and modifies only an incremental revenue value, representing revenue associated with misreported sales assumed to be attributable to the ESPs that were under-represented in the survey frame.

Instrument and Design History: The Form EIA-861 was implemented in January 1985 for collection of data as of year-end 1984. The Federal Energy Administration Act of 1974 (Public Law 93-275) defines the legislative authority to collect these data.

Average Retail Price of Electricity: This value represents the average cost per unit of electricity sold and is calculated by dividing retail electric revenue by the corresponding sales of electricity. The average retail price of electricity is calculated for all consumers and for each end-use sector.

The electric revenue used to calculate the average retail price of electricity is the operating revenue reported by the electric power industry participant. Operating revenue includes energy charges, demand charges, consumer service charges, environmental surcharges, fuel adjustments, and other miscellaneous charges. Electric power industry participant operating revenues also include ratepayer reimbursements for State and Federal income taxes and other taxes paid by the utility.

This computed average retail price of electricity reported in this publication by is a weighted average of consumer revenue and sales and does not equal the per kWh rate charged by the electric power industry participant to the individual consumers. Electric utilities typically employ a number of rate schedules within a single sector. These alternative rate schedules reflect the varying consumption levels and patterns of consumers and their associated impact on the costs of the electric power industry participant for providing electrical service.

Issues within Historical Data Series: Changes from year to year in consumer counts, sales and revenues, particularly involving the commercial and industrial consumer sectors, may result from respondent implementation of changes in the definitions of consumers, and reclassifications. Utilities and energy service providers may classify commercial and industrial customers based on either NAICS codes or demands or usage falling within specified limits by rate schedule. The number of ultimate customers is an average of the number of customers at the close of each month. Also see the discussion of the Transportation Sector, above.

Net-Metering: This section was expanded in 2011. Previously, customer count by sector was the only data collected and published. In 2010, the EIA-861 started collecting the capacity of the net-metered installations by sector and technology. The technology types are: photovoltaic (PV), wind and other.

Starting with the 2016 data collection year, storage and virtual net metering were added to the PV section.

Demand-Side Management (DSM): Prior to 2011, DSM data was separated into two categories, large and small utilities. Some tables contained data for just large utilities and others contained both categories, published separately. Starting in 2011, there is no longer a division in the data. All tables now include all DSM data from utilities; this change is also reflected in the historical data.

Starting in 2011, a new category of respondents were added to the EIA-861, non-utility DSM administrators: Efficiency Maine Trust, Energy trust of Oregon, Focus on Energy, NYSERDA and Vermont Energy Investment Corporation.

The following definitions are supplied to assist in interpreting DSM data. Utility costs reflect the total cash expenditures for the year, in nominal dollars, that used to support DSM programs.

- **Actual Peak Load Reduction** is the actual reduction in annual peak load achieved by all program participants during the reporting year, at the time of annual peak load, as opposed to the installed peak load reduction capability (potential peak load reduction). Actual peak load reduction is reported by large utilities only.
- **Energy Savings** is the change in aggregate electricity use (measured in megawatthours) for consumers that participate in a utility DSM program. These savings represent changes at the consumer's meter (i.e., exclude transmission and distribution effects) and reflect only activities that are undertaken specifically in response to utility-administered programs, including those activities implemented by third parties under contract to the utility.
- **Large Utilities** are those electric utilities with annual sales to ultimate customers or sales for resale greater than or equal to 150 million kilowatthours in 1998-2009 and, for years prior, the threshold was set at 120 million kilowatthours.
- **Potential Peak Load Reduction** is the potential peak load reduction that may occur if all demand response is called and/or participates.

Advanced Metering: New in 2011, Automated Meter Reading (AMR) and Advanced Metering Infrastructure (AMI), including historical data back to 2007. From 2007-2009, the count by sector is for number of customers, for 2010-2011, the count is the actual number of meters. For example; if an industrial customer had 12 meters, in 2007-2009 the count would have been 1, in 2010-2011, the count would be 12.

In 2013, the number of standard meters (non AMR/AMI) was added to this schedule.

Sensitive Data: None.

Forms EIA-906 and EIA-920 (Replaced in 2008 by Form EIA-923)

The Form EIA-906 was used to collect plant-level data on generation, fuel consumption, stocks, and fuel heat content, from electric utilities and nonutilities. Data were collected monthly from a model-based sample of approximately 1,700 utility and nonutility electric power plants. The form was also used to

collect these statistics from another 2,667 plants (i.e., all other generators 1 MW or greater) on an annual basis. The form was ended after the 2007 data collection and replaced by the Form EIA-923.

Instrument and Design History: The Bureau of Census and the U.S. Geological Survey collected, compiled, and published data on the electric power industry prior to 1936. After 1936, the FPC assumed all data collection and publication responsibilities for the electric power industry and implemented the Form FPC-4. The Federal Power Act, Section 311 and 312, and FPC Order 141 defined the legislative authority to collect power production data. The Form EIA-759 replaced the Form FPC-4 in January 1982. In 1996, the Form EIA-900 was initiated to collect sales for resale data from unregulated entities. In 1998, the Form EIA-900 was modified to collect sales for resale, gross generation, and sales to end user data. In 1999, the form was modified to collect net generation, consumption, and ending stock data. In 2000, the form was modified to include data on the production of useful thermal output (typically process steam) by combined heat and power (CHP) plants.

In January 2001, Form EIA-906 superseded Forms EIA-759 and EIA-900. In January 2004, Form EIA-920 superseded Form EIA-906 for those plants defined as CHP plants; all other plants that generated electricity continued to report on Form EIA-906. The Federal Energy Administration Act of 1974 (Public Law 93 275) defines the legislative authority to collect these data. In January 2008, the Form EIA-923 superseded this form.

Issues within Historical Data Series: A relatively small number electric commercial- and industrial-only plants are, for the purposes of this report, are included in the CHP data categories. The small number of electric utility plants that are CHP units are reported together with other utility plants. No information on the production of useful thermal output (UTO) or fuel consumption for UTO was collected or estimated for the electric utility CHP plants.

Sensitive Data: The only business sensitive data element collected on the Forms EIA-906 and EIA-920 was fuel stocks at the end of the reporting period.

Form EIA-923

Form EIA-923, "Power Plant Operations Report," is used to collect information on receipts and cost of fossil fuels, fuel stocks, generation, consumption of fuel for generation, nonutility source and disposition of electricity, combustion by-product collection and disposal, and cooling systems, as well as operational data for flue gas desulfurization, particulates, and nitrous oxide controls. Data are collected from a monthly sample of approximately 2,150 plants, which includes a census of nuclear and pumped-storage hydroelectric plants. The plants in the monthly sample report their receipts, cost and stocks of fossil fuels, electric power generation, and the total consumption of fuels for both electric power generation and, at combined heat and power (CHP) plants, useful thermal output. At the end of the year, the monthly respondents report their annual source and disposition of electric power (nonutilities only), operational data for air emissions controls and cooling systems, and the collection and disposal of combustion by-products on the Form EIA-923 Supplemental Form (Schedules 6, 7, and 8A to 8F). Approximately 7,800 plants, representing all generators not included in the monthly sample and with a nameplate capacity of 1 MW or more, report applicable data on the entire form annually. In addition to electric power generating plants, respondents include fuel storage terminals without

generating capacity that receive shipments of fossil fuel for eventual use in electric power generation. The monthly data are due by the last day of the month following the reporting period.

Receipts of fossil fuels, fuel cost and quality information, and fuel stocks at the end of the reporting period are all reported at the plant level. Fuel receipts and costs are collected from plants with a nameplate capacity of 50 MW or more and burn fossil fuels. Plants that burn organic fuels and have a steam turbine capacity of at least 10 megawatts report consumption at the boiler level and generation at the generator level for each month, regardless of whether the plant reports in the monthly sample or reports annually. For all other plants, consumption is reported at the prime-mover level and generation is reported at the prime-mover level or, for noncombustible sources (e.g., wind, nuclear), at the prime-mover and energy source levels (including generating units for nuclear only). The source and disposition of electricity are reported annually for nonutilities at the plant level, as is revenue from sales for resale. Operational data for air emissions equipment are collected annually from facilities that have a steam turbine capacity of at least 10 megawatts, and operational data on cooling systems and data on the collection and disposal of combustion by-products are collected from facilities that have a steam turbine capacity of at least 100 megawatts.

Instrument and Design History: See discussion of predecessor forms (EIA-906, -920, -767, and -423, and FERC Form 423).

Imputation: For data collected monthly, regression prediction, or imputation, is done for all missing data including non-sampled units and any non-respondents. For data collected annually, imputation is performed for non-respondents. For gross generation and total fuel consumption, multiple regression is used for imputation (see discussion, above). Approximately 0.02 percent of the national total generation for is imputed, although this will vary by State and energy source.

When gross generation is reported and net generation is not available, or vice versa, net or gross generation is estimated by using a fixed ratio of net to gross generation by prime-mover type and installed emissions equipment. These ratios are:

Net Generation = (Factor) x Gross Generation
<u>Prime Movers:</u>
Combined Cycle Steam - 0.97
Combined Cycle Single Shaft - 0.97
Combined Cycle Combustion Turbine - 0.97
Compressed Air - 0.97
Fuel Cell - 0.99
Gas Turbine - 0.98
Hydroelectric Turbine - 0.99
Hydroelectric Pumped Storage - 0.99
Internal Combustion Engine - 0.98
Other - 0.97
Photovoltaic - 0.99
Steam Turbine - 0.97
Wind Turbine - 0.99
<u>Environmental Equipment:</u>
Flue Gas Desulfurization - 0.97
Flue Gas Particulate 0.99
All Others - 0.97

For stocks, a linear combination of the prior month's ending stocks value and the current month's consumption and receipts values is used.

Receipts of Fossil Fuels: Receipts data, including cost and quality of fuels, are collected at the plant level from selected electric generating plants and fossil-fuel storage terminals in the United States. Power plants include independent power producers, electric utilities, and commercial and industrial CHP facilities with a total fossil-fueled nameplate capacity of 50 megawatts or more. The data on cost and quality of fuel shipments are used to produce aggregates and weighted averages for each fuel type at the State, Census division, and U.S. levels.

The units for receipts are: 1) coal and petroleum coke, tons and million Btu per ton; 2) petroleum, barrels and million Btu per barrel.; and gases, thousand cubic feet (Mcf) and million Btu per thousand cubic feet.

Net and Gross Generation and Fuel Consumption and Stocks: Generation data are collected in megawatthours from all power plants with a sum of nameplate capacity at least 1 MW. The fuels consumed are collected in tons (solids), barrels (liquids) and thousand cubic feet (gases). Fuels are grouped into coal, petroleum liquids, petroleum coke, natural gas, other gases, and other miscellaneous fuels. Energy consumption is not collected for nuclear, wind, solar, geothermal or other plants that do not burn fuels. For information on fuel groupings, see the instructions to the Form EIA-923 at http://www.eia.gov/survey/form/eia_923/instructions.pdf. **Combustion By-Product Collection and Disposal:** Data are collected in thousand tons. Associated financial data for by-products (O&M and capital expenses and revenue) are collected in thousand dollars.

Air Emissions Equipment: Operational efficiencies and emission rates are collected for flue gas desulfurization, particulate matter, and nitrous oxide control equipment for steam-electric units with at least 10 MW nameplate capacity.

Cooling Systems: Operational data on water use is collected from steam-electric plants, including nuclear plants, with at least 100 MW nameplate capacity.

Methodology to Estimate Biogenic and Non-biogenic Municipal Solid Waste:⁴ Municipal Solid Waste (MSW) consumption for generation of electric power is split into its biogenic and non-biogenic components beginning with 2001 data by the following methodology:

The tonnage of MSW consumed is reported on the Form EIA-923. The composition of MSW and categorization of the components were obtained from the Environmental Protection Agency (EPA) publication, *Municipal Solid Waste in the United States: 2005 Facts and Figures*. The Btu contents of the components of MSW were obtained from various sources.

In 2011, the components of MSW as a percentage of the total were updated. The updated values were applied to final 2011 data and to preliminary 2012 and 2013 data. Although updated component percentages for 2006 through 2010 were available, historical EIA data series for consumption of MSW and net generation were not revised for 2005 to 2010. The tables below are the percentages applied to the EIA data for each year.

The potential quantities of combustible MSW discards (which include all MSW material available for combustion with energy recovery, discards to landfill, and other disposal) were multiplied by their respective Btu contents. The EPA-based categories of MSW were then classified into renewable and non-renewable groupings. From this, EIA calculated how much of the energy potentially consumed from MSW was attributed to biogenic components and how much to non-biogenic components (see Table 1 and 2, below).⁵

These values are used to allocate consumption of municipal solid waste and net generation published in the Electric Power Monthly tables. The tons of biogenic and non-biogenic components were estimated with the assumption that glass and metals were removed prior to combustion. The average Btu/ton for the biogenic and non-biogenic components is estimated by dividing the total Btu consumption by the total tons. Published net generation attributed to biogenic MSW and non-biogenic MSW is classified under Other Renewables and Other, respectively.

Table 1. Btu consumption for biogenic and non-biogenic municipal solid waste (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Biogenic	57	56	55	55	56	56	56	56	56	56	51
Non-biogenic	43	44	45	45	44	44	44	44	44	44	49

Table 2. Tonnage consumption for biogenic and non-biogenic municipal solid waste (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Biogenic	77	77	76	76	75	75	75	75	75	75	64
Non-biogenic	23	23	24	24	25	25	25	25	25	25	36

Useful Thermal Output (UTO): With the implementation of the Form EIA-923, “Power Plant Operations Report,” in 2008, combined heat and power (CHP) plants were required to report total fuel consumed and electric power generation. Beginning with preliminary January 2008 data, EIA estimated the allocation of the total fuel consumed at CHP plants between electric power generation and UTO.

The estimated allocation methodology is summarized in the following paragraphs. The methodology was retroactively applied to 2004-2007 data. Prior to 2004, UTO was collected on the Form EIA-906 and an estimated allocation of fuel for electricity was not necessary.

First, an efficiency factor is determined for each plant and prime mover type. Based on data for electric power generation and UTO collected in 2003 (on Form EIA-906, “Power Plant Report”), efficiency was calculated for each prime mover type at a plant. The efficiency factor is the total output in Btu, including electric power and UTO, divided by the total input in Btu. Electric power is converted to Btu at 3,412 Btu per kilowatthour.

Second, to calculate the amount of fuel for electric power, the gross generation in Btu is divided by the efficiency factor. The fuel for UTO is the difference between the total fuel reported and the fuel for electric power generation. UTO is calculated by multiplying the fuel for UTO by the efficiency factor.

In addition, if the total fuel reported is less than the estimated fuel for electric power generation, then the fuel for electric power generation is equal to the total fuel consumed, and the UTO will be zero.

Beginning with 2016 Form EIA-923 data, reported efficiency factors by survey respondents replaced the previously EIA estimated efficiency factors used in the fuel allocation process. For the processing of 2016 CHP data, EIA used for each plant an average of the efficiency factors reported by the CHP plants on the 2013, 2014, and 2015 Form EIA-923, “Power Plant Operations Report” surveys. An average was used to smooth out variations in any one year’s data. Once efficiency of each plant was established, the value was input into the above methodology to allocate the consumption of fuel between electric power and UTO. This update applies to the 2016 data and going forward but was not retroactively applied to previous years.

Issues within Historical Data Series for Receipts and Cost and Quality of Fossil Fuels: Values for receipts of natural gas for 2001 forward do not include blast furnace gas or other gas.

Historical data collected on FERC Form 423 and published by EIA have been reviewed for consistency between volumes and prices and for their consistency over time. However, these data were collected by FERC for regulatory rather than statistical and publication purposes. EIA did not attempt to resolve any late filing issues in the FERC Form 423 data. In 2003, EIA introduced a procedure to estimate for late

or non-responding entities that were required to report on the FERC Form 423. Due to the introduction of this procedure, 2003 and later data cannot be directly compared to previous years' data.

Prior to 2008, regulated plants reported receipts data on the FERC Form 423. These plants, along with unregulated plants, now report receipts data on Schedule 2 of Form EIA-923. Because FERC issued waivers to Form 423 filing requirements to some plants who met certain criteria, and because not all types of generators were required to report (only steam turbines and combined cycle units reported), a significant number of plants either did not submit fossil fuel receipts data or submitted only a portion of their fossil fuel receipts. Since Form EIA-923 does not have exemptions based on generator type, or reporting waivers, receipts data from 2008 and later cannot be directly compared to previous years' data for the regulated sector. Also beginning with January 2008 data, tables for total receipts included imputed quantities for plants with capacity one megawatt or more, to be consistent with other electric power data. Previous published receipts data were from plants at or over a 50 megawatt threshold, which was a legacy of their original collection as information for a regulatory agency, not as a survey to provide more meaningful estimates of totals for statistical purposes. Totals appeared to become smaller as more electric production came from unregulated plants, until the Form EIA-423 was created to help fill that gap. As a further improvement, estimation of all receipts for the universe normally depicted in the Electric Power Annual (i.e., one megawatt and above), with associated relative standard errors, provides a more complete assessment of the market.

Issues within Historical Data Series for Generation and Consumption: Beginning in 2008, a new method of allocating fuel consumption between electric power generation and UTO was implemented (see above). This new methodology evenly distributes a CHP plant's losses between the two output products (electric power and UTO). In the historical data, UTO was consistently assumed to be 80 percent efficient and all other losses at the plant were allocated to electric power. This change causes the fuel for electric power to be lower while the fuel for UTO is higher as both are given the same efficiency. This results in the appearance of an increase in efficiency of production of electric power between periods.

Sensitive Data: The total delivered cost of fuel delivered to nonutilities, the commodity cost of fossil fuels, and fuel stocks are considered business sensitive.

Capacity Factors and Usage Factors

This section describes the methodology for calculating capacity factors and usages factors by fuel and technology type for operating electric power plants. Capacity factor is a measure (expressed as a percent) of how often an electric generator operates over a specific period of time, using a ratio of the actual output to the maximum possible output over that time period.

The monthly capacity factor calculation includes all operating electric generators which operated for the entire month using the net generation reported on the Form EIA-923 and the net summer capacity reported on the Form EIA-860. The capacity factor for a particular fuel/technology type is given by:

$$capacity\ factor = \frac{\sum_{x,m} net\ generation_{x,m}}{\sum_{x,m} capacity_{x,m} * hours\ in\ month_m}$$

where x represents generators of that fuel/technology combination and m represents individual months. Net generation and capacity are specific to a generator, and the generator is categorized by its primary fuel type as reported on the EIA-860. All generation from that generator is included, regardless of other fuels consumed. Net generation and capacity for a generator is excluded from the summations during the month that the generator initially began operation and if applicable during the month that the generator retired. Therefore, these published capacity factors will differ from a simple calculation using annual generation and capacity totals from the appropriate tables in this publication.

Usage factors are calculated for energy storage technologies using gross generation instead of net generation:

$$usage\ factor = \frac{\sum_{x,m} gross\ generation_{x,m}}{\sum_{x,m} capacity_{x,m} * hours\ in\ month_m}$$

Air Emissions

This section describes the methodology for calculating estimated emissions of carbon dioxide (CO₂) from electric generating plants for 1989 through the present, as well as the estimated emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) from electric generating plants for 2001 through the present. For a description of the methodology used for other years, see the technical notes to the EPA 2003.

Methodology Overview: Initial estimates of uncontrolled SO₂ and NO_x emissions for all plants are made by applying an emissions factor to fuel consumption data collected by EIA on the Form EIA-923. An emission factor is the average quantity of a pollutant released from a power plant when a unit of fuel is burned, assuming no use of pollution control equipment. The basic relationship is:

$$Emissions = Quantity\ of\ Fuel\ Consumed \times Emission\ Factor$$

Quantity is defined in physical units (e.g., tons of solid fuels, million cubic feet of gaseous fuels, and thousands of barrels of liquid fuels) for determining NO_x and SO₂ emissions. As discussed below, physical quantities are converted to millions of Btus for calculating CO₂ emissions.

For some fuels, the calculation of SO₂ emissions requires including in the formula the sulfur content of the fuel measured in percentage of weight. Examples include coal and fuel oil. In these cases the formula is:

$$Emissions = Quantity\ of\ Fuel\ Consumed \times Emission\ Factor \times Sulfur\ Content$$

The fuels that require the percent sulfur as part of the emissions calculation are indicated in Table A.1., which lists the SO₂ emission factors used for this report.

In the case of SO₂ and NO_x emissions, the factor applied to a fuel can also vary with the combustion system: a steam-producing boiler, a combustion turbine, or an internal combustion engine. In the case of boilers, NO_x emissions can also vary with the firing configuration of a boiler and whether or not the boiler is a wet-bottom or dry-bottom design.⁶ These distinctions are shown in Tables A.1. and A.2.

For SO₂ and NO_x, the initial estimate of uncontrolled emissions is reduced to account for the plant's operational pollution control equipment, when data on control equipment are available from the historical Form EIA-767 survey (i.e., data for the years 2005 and earlier) and the EIA-860 and EIA-923 surveys for the years 2007 through 2010. A special case for removal of SO₂ is the fluidized bed boiler, in which the sulfur removal process is integral with the operation of the boiler. The SO₂ emission factors shown in Table A.1. for fluidized bed boilers already account for 90 percent removal of SO₂ since, in effect, the plant has no uncontrolled emissions of this pollutant.

Although SO₂ and NO_x emission estimates are made for all plants, in many cases the estimated emissions can be replaced with actual emissions data collected by the U.S. Environmental Protection Agency's (U.S. EPA's) Continuous Emissions Monitoring System (CEMS) program. (CEMS data for CO₂ are incomplete and are not used in this report.) The CEMS data account for the bulk of SO₂ and NO_x emissions from the electric power industry. For those plants for which CEMS data are available, the EIA estimates of SO₂ and NO_x emissions are employed for the limited purpose of allocating emissions by fuel, since the CEMS data itself do not provide a detailed breakdown of plant emissions by fuel. For plants for which CEMS data are unavailable, the EIA-computed values are used as the final emissions estimates.

There are a number of reasons why the historical data are periodically revised. These include data revisions, revisions in emission and technology factors, and changes in methodology. For instance, the 2008 Electric Power Annual report features a revision in historic CO₂ values. This revision occurred due to a change in the accepted methodology regarding adjustments made for the percentage combustion of fuels.

The emissions estimation methodologies are described in more detail below.

CO₂ Emissions: CO₂ emissions are estimated using the information on fuel consumption in physical units and the heat content of fuel collected on the Form EIA-923 and predecessors. Heat content information is used to convert physical units to millions of Btu (MMBtu) consumed. To estimate CO₂ emissions, the fuel-specific emission factor from Table A.3. is multiplied by the fuel consumption in MMBtu.

The estimation procedure calculates uncontrolled CO₂ emissions. CO₂ control technologies are currently in the early stages of research and there are no commercial systems installed. Therefore, no estimates of controlled CO₂ emissions are made.

SO₂ and NO_x Emissions: To comply with environmental regulations controlling SO₂ emissions, many coal-fired generating plants have installed flue gas desulfurization (FGD) units. Similarly, NO_x control regulations require many fossil-fueled plants to install low-NO_x burners, selective catalytic reduction systems, or other technologies to reduce emissions. It is common for power plants to employ two or even three NO_x control technologies; accordingly, the NO_x emissions estimation approach accounts for the combined effect of the equipment (Table A.4.). However, control equipment information is available only for plants that reported on the Form EIA-923 and for historical data from the Form EIA-767. The Form EIA-860, EIA-923, and the historical EIA-767 surveys are limited to plants with boilers fired by combustible fuels⁷ with a minimum generating capacity of 10 megawatts (nameplate). Pollution control equipment data are unavailable from EIA sources for plants that did not report on the historical EIA-767 survey, or the Forms EIA-860 and EIA-923.

The following method is used to estimate SO₂ and NO_x emissions:

- For steam electric plants, uncontrolled emissions are estimated using the emission factors shown in Tables A.1. and A.2. as well as reported data on fuel consumption, sulfur content, and boiler firing configuration. Controlled emissions are then determined when pollution control equipment is present. Although information on control equipment was not collected in 2006, updates for new installations during this period were made based on EPA data. Beginning in 2007, these data were collected on the Forms EIA-860 and EIA-923. For SO₂, the reported efficiency of the plant's FGD units is used to convert uncontrolled to controlled emission estimates. For NO_x, the reduction percentages shown in Table A.4. are applied to the uncontrolled estimates.
- For plants and prime movers not reported on the historical Form EIA-767 survey or Forms EIA-860 and EIA-923, uncontrolled emissions are estimated using the Table A.1. and Table A.2. emission factors and the following data and assumptions:
 - Fuel consumption is taken from the Form EIA-923 and predecessors.
 - The sulfur content of the fuel is estimated from fuel receipts for the plant reported on the Form EIA-923. When plant-specific sulfur content data are unavailable, the national average sulfur content for the fuel, computed from the Form EIA-923 is applied to the plant.
 - As noted earlier, the emission factor for plants with boilers depends in part on the type of combustion system, including whether a boiler is wet-bottom or dry-bottom, and the boiler firing configuration. However, this boiler information is unavailable for steam electric plants that did not report on the historical Forms EIA-767 or EIA-860. For these cases, the plant is assumed to have a dry-bottom, non-cyclone boiler using a firing method that falls into the "All Other" category shown on Table A.1.⁸
For the plants that did not report on the historical Form EIA-767 or EIA-860, pollution control equipment data are unavailable and the uncontrolled estimates are not reduced.
- If actual emissions of SO₂ or NO_x are reported in the EPA's CEMS data, the EIA estimates are replaced with the CEMS values, using the EIA estimates to allocate the CEMS plant-level data by fuel. If CEMS data are unavailable, the EIA estimates are used as the final values.

Conversion Factors for Propane, Petroleum Coke, and Synthesis Gases.

The quantity conversion for petroleum coke is 5 barrels (of 42 U.S. gallons each) per short ton (2,000 pounds), propane is 1.53 thousand cubic feet per barrel, coal-derived synthesis gas is 98.06 thousand cubic feet per ton, and petroleum coke-derived synthesis gas is 107.31 thousand cubic feet per ton.

Relative Standard Error

The relative standard error (RSE) statistic, usually given as a percent, describes the magnitude of sampling error that might reasonably be incurred. The RSE is the square root of the estimated variance, divided by the variable of interest. The variable of interest may be the ratio of two variables, or a single variable.

The sampling error may be less than the non-sampling error. In fact, large RSE estimates found in preliminary work with these data have often indicated non-sampling errors, which were then identified and corrected. Non-sampling errors may be attributed to many sources, including response errors, definitional difficulties, differences in the interpretation of questions, mistakes in recording or coding data obtained, and other errors of collection, response, or coverage. These non-sampling errors also occur in complete censuses.

Using the Central Limit Theorem, which applies to sums and means such as are applicable here, there is approximately a 68 percent chance that the true total or mean is within one RSE of the estimated total. Note that reported RSEs are always estimates, themselves, and are usually, as here, reported as percents. As an example, suppose that a net generation from coal value is estimated to be 1,507 total million kilowatthours with an estimated RSE of 4.9 percent. This means that, ignoring any non-sampling error, there is approximately a 68 percent chance that the true million kilowatthour value is within approximately 4.9 percent of 1,507 million kilowatthours (that is, between 1,433 and 1,581 million kilowatthours). Also under the Central Limit Theorem, there is approximately a 95 percent chance that the true mean or total is within 2 RSEs of the estimated mean or total.

Note that there are times when a model may not apply, such as in the case of a substantial reclassification of sales, when the relationship between the variable of interest and the regressor data does not hold. In such a case, the new information represents only itself, and such numbers are added to model results when estimating totals. Further, there are times when sample data may be known to be in error, or are not reported. Such cases are treated as if they were never part of the model-based sample, and values are imputed.

Business Classification

Nonutility power producers consist of entities that own or operate electric generating units but are not subject to direct economic regulation of rates, such as by state utility commissions. Nonutility power producers do not have a designated franchised service area. In addition to entities whose primary business is the production and sale of electric power, entities with other primary business classifications can and do sell electric power. These can consist of, for example, manufacturing facilities and paper mills.

The EIA, in the Electric Power Annual and other data products, classifies nonutility power producers into the following categories:

- **Electric Utility (Sector 1):** All regulated plants with a primary purpose of selling electricity in the public markets (NAICS = 22).
- **Independent Power Producers (Sector 2):** All non-regulated plants with a primary purpose of electric power generation and a primary purpose of selling electricity in the public markets (NAICS = 22) with no ability to cogenerate heat and power.
- **Electric Power, Combined Heat and Power (Sector 3):** All non-regulated plants with a primary purpose of electric power generation and a primary purpose of selling electricity in the public markets (NAICS = 22) with the ability to cogenerate heat and power.
- **Commercial, Non-Combined Heat and Power (Sector 4):** All plants with a commercial primary purpose with no ability to cogenerate heat and power.

- **Commercial, Combined Heat and Power (Sector 5):** All plants with a commercial primary purpose with the ability to cogenerate heat and power.
- **Industrial, Non-Combined Heat and Power (Sector 6):** All plants with an industrial primary purpose with no ability to cogenerate heat and power.
- **Industrial, Combined Heat and Power (Sector 7):** All plants with an industrial primary purpose with the ability to cogenerate heat and power.

The following is a list of the North American Industry Classification System (NAICS) classifications used by EIA.

	Agriculture, Forestry, Fishing and Hunting
111	Crop Production
112	Animal Production
113	Forestry and Logging
114	Fishing, Hunting and Trapping
115	Support Activities for Agriculture and Forestry
	Mining, Quarrying, and Oil and Gas Extraction
211	Oil and Gas Extraction
2121	Coal Mining
2122	Metal Ore Mining
2123	Nonmetallic Mineral Mining and Quarrying
	Utilities
22	Electric Power Generation, Transmission and Distribution (other than 2212, 2213, 22131, 22132 or 22133)
2212	Natural Gas Distribution
22131	Water Supply and Irrigation Systems
22132	Sewage Treatment Facilities
22133	Steam and Air-Conditioning Supply
	Manufacturing
311	Food Manufacturing
312	Beverage and Tobacco Product Manufacturing
313	Textile Mills (Fiber, Yarn, Thread, Fabric, and Textiles)
314	Textile Product Mills
315	Apparel Manufacturing
316	Leather and Allied Product Manufacturing
321	Wood Product Manufacturing
322	Paper Manufacturing (other than 322122 or 32213)
322122	Newsprint Mills
32213	Paperboard Mills
323	Printing and Related Support Activities
324	Petroleum and Coal Products Manufacturing (other than 32411)
32411	Petroleum Refineries
325	Chemical Manufacturing (other than 32511, 32512, 325193, 325188, 3252 325211, 3253 or 325311)
32511	Petrochemical Manufacturing
32512	Industrial Gas Manufacturing
325193	Ethyl Alcohol Manufacturing (including Ethanol)
325188	Industrial Inorganic Chemicals

3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing (other than 325211)
325211	Plastics Material and Resin Manufacturing
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing (other than 325311)
325311	Nitrogenous Fertilizer Manufacturing
326	Plastics and Rubber Products Manufacturing
327	Nonmetallic Mineral Product Manufacturing (other than 32731)
32731	Cement Manufacturing
331	Primary Metal Manufacturing (other than 331111 or 331312)
331111	Iron and Steel Mills
331312	Primary Aluminum Production
332	Fabricated Metal Product Manufacturing
333	Machinery Manufacturing
334	Computer and Electronic Product Manufacturing
335	Electrical Equipment, Appliance, and Component Manufacturing
336	Transportation Equipment Manufacturing
337	Furniture and Related Product Manufacturing
339	Miscellaneous Manufacturing
421	Wholesale Trade
441	Retail Trade
	Transportation and Warehousing
481	Air Transportation
482	Rail Transportation
483	Water Transportation
484	Truck Transportation
485	Transit and Ground Passenger Transportation
486	Pipeline Transportation
487	Scenic and Sightseeing Transportation
488	Support Activities for Transportation (other than 4881, 4882, 4883 or 4884)
4881	Support Activities for Air Transportation (including Airports)
4882	Support Activities for Rail Transportation (including Rail Stations)
4883	Support Activities for Water Transportation (including Marinas)
4884	Support Activities for Road Transportation
491	Postal Service
492	Couriers and Messengers
493	Warehousing and Storage
	Information
511	Publishing Industries (except Internet)
512	Motion Picture and Sound Recording Industries
515	Broadcasting (except Internet)
517	Telecommunications
518	Data Processing, Hosting, and Related Services
519	Other Information Services
521	Finance and Insurance
53	Real Estate and Rental and Leasing (including Convention Centers and Office Buildings)
541	Professional, Scientific, and Technical Services

55	Management of Companies and Enterprises
	Administrative and Support and Waste Management and Remediation Services
561	Administrative and Support Services
562	Waste Management and Remediation Services (other than 562212 or 562213)
562212	Solid Waste Landfill
562213	Solid Waste Combustors and Incinerators
611	Educational Services
	Health Care and Social Assistance
621	Ambulatory Health Care Services
622	Hospitals
623	Nursing and Residential Care Facilities
624	Social Assistance
	Arts, Entertainment, and Recreation
711	Performing Arts, Spectator Sports, and Related Industries
712	Museums, Historical Sites, and Similar Institutions
713	Amusement, Gambling, and Recreation Industries
	Accommodation and Food Services
721	Accommodation
722	Food Services and Drinking Places
	Other Services (except Public Administration)
811	Repair and Maintenance
812	Personal and Laundry Services
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations
814	Private Households
	Public Administration (other than 921, 922, 92214 or 928)
92	Executive, Legislative, and Other General Government Services
921	Justice, Public Order and Safety Activities (other than 92214)
922	Correctional Facilities
92214	Correctional Facilities
928	National Security and International Affairs (including Military Bases)

Multiple Survey Programs- Small Scale PV Solar Estimation of Generation

Monthly generation from small scale PV solar resources is an estimation of the generation produced from PV solar resources and not the results of a data collection effort for generation directly, with the exception of “Third Party Owned” or (TPO) solar installations which has direct data collection. TPO data however is not comprehensive. TPOs do not operate in every state, TPO collected data is not a large portion of the estimated amount, and the data has been collected for limited period of time. The generation estimate is based on data collected for PV solar capacity.

Capacity of PV solar resources is collected directly from respondents. These data are collected on several EIA forms and from several types of respondents. Monthly data for net-metered PV solar capacity is reported on the Form EIA-826. Form EIA-826 is a cutoff sample drawn from the annual survey Form EIA-861 which collects this data from all respondents. Using data from both of these surveys we have a regression model to impute for the non-sampled monthly capacity.

The survey instruments collect solar net metering capacity from reporting utilities by state and customer class. There are four customer classes: residential, commercial, industrial and transportation. However, the estimation process included only the residential, commercial and industrial customers.¹ Data for these customer classes were further classified by U.S. Census Regions, to ensure adequate number of customer observations in for each estimation group.

Estimation Model: The total PV capacity reported by utilities in the annual EIA-861 survey is the single primary input (regressor) to the monthly estimation of PV capacity by state. The model tested for each Census Region was of the form:

$$y_{i,2015,m} = \beta_1 x_{i,2013} + w_i^{-1/2} e_i, \text{ where}$$

$x_{i,2013}$ is the i^{th} utility's 2013 (or the last published year) solar PV capacity

$y_{i,2015,m}$ is the i^{th} utility's month m , 2015 (or the current year) reported solar PV capacity

w_i is the weight factor, which is the inverse of $x_{i,2013}$

β_1 is effectively the growth rate of reported month m solar PV capacity

e_i is the error term

The model checks for outliers and removes them from the regression equation inputs. The model calculates RSEs by sector, state, census region, and US total. Once we have imputed for all of the monthly net-metered PV solar capacity we add to total net metered capacity, the PV solar capacity collected on the Form EIA-861 for distributed and dispersed resources that are not net metered.

We use a second model to estimate the generation using this capacity as an input. The original methodology was developed for the "Annual Energy Outlook" based on our "NEMS" modelled projections several years ago. The original method underwent a calibration project designed to develop PV production levels for the NEMS projections consistent with simulations of a National Renewable Energy Laboratory model called PVWatts, which is itself embedded in PC software under the umbrella of the NREL's System Advisor Model (SAM).

The PVWatts simulations require, panel azimuth orientations and tilts, something that the NEMS projections do not include. Call the combinations of azimuths and tilts "orientations." The orientation and solar insolation (specific to a location) have a direct effect on the PV production level. The calibration project selected the 100 largest population Metropolitan Statistical Areas (MSAs) and relied on weights derived from orientation data from California Solar Initiative dataset to develop typical outputs for each of the 100 MSAs. It then was expanded from an annual estimate to a monthly estimate. A further description of this model is located here. A listing of the MSAs are included in Appendix 1.

Using Form EIA-861 data for service territories, which lists the counties that each electric distribution company (EDC) provides service, and NREL solar insolation data by county a simple average of insolation values by EDC is calculated.

Using the estimation model, we produce by utility, by state and by sector an estimate of generation. All the utilities' capacity and generation estimates are summed by state and sector and a KWh/KW rate by state and sector is calculated.

Capacity from the Form EIA-860 that is net metered is subtracted from the total capacity by state and sector as well as the capacity reported on the EIA-826 from TPOs, resulting in a new "net" capacity amount. This capacity amount is multiplied by the KWh/KW rate to produce the non-TPO generation estimate and then it is added to the TPO reported sales to ultimate customers from the EIA-826 to obtain a final estimate for generation and a blended KWh/KW rate is calculated. The estimate for generation is aggregated by US census regions and US totals. The RSEs for capacity are checked for level of error and if they pass, the summary data by state, US census region and US total are reported in the EPM.

Appendix 2 contains a flow diagram of the data inputs, data quality control checks and data analysis required to perform this estimation.

Appendix 1- MSAs

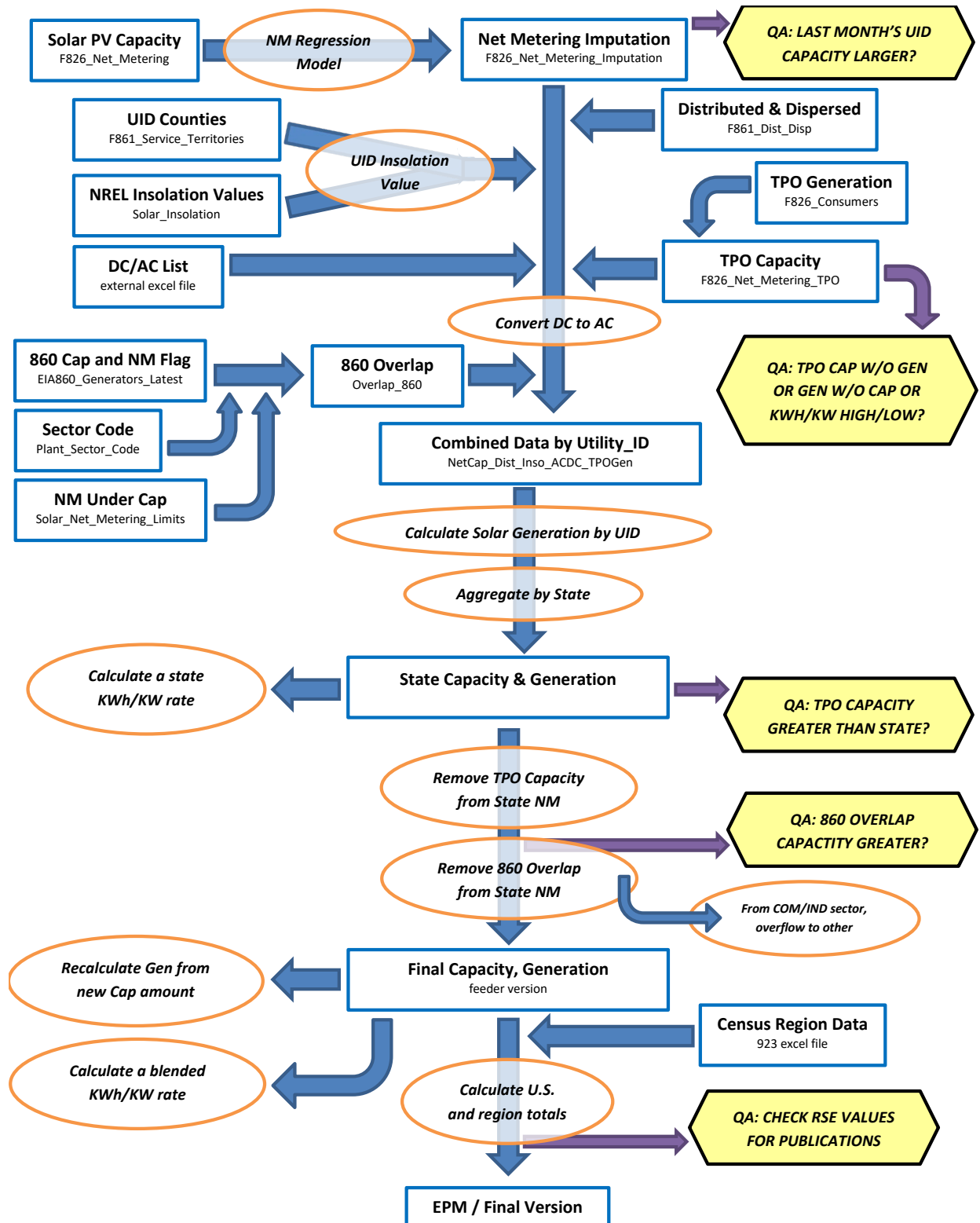
TMY3 (1991-2005) Weather Stations by MSA

Site	Weather Location	MSA
1	USA NY New York Central Park Obs.	New York-Newark-Jersey City, NY-NJ-PA MSA
2	USA CA Los Angeles Intl Airport	Los Angeles-Long Beach-Anaheim, CA MSA
3	USA IL Chicago Midway Airport	Chicago-Naperville-Elgin, IL-IN-WI MSA
4	USA TX Dallas-fort Worth Intl Airport	Dallas-Fort Worth-Arlington, TX MSA
5	USA TX Houston Bush Intercontinental	Houston-The Woodlands-Sugar Land, TX MSA
6	USA PA Philadelphia Int'l Airport	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA
7	USA VA Washington Dc Reagan Airport	Washington-Arlington-Alexandria, DC-VA-MD-WV MSA
8	USA FL Miami Intl Airport	Miami-Fort Lauderdale-West Palm Beach, FL MSA
9	USA GA Atlanta Hartsfield Intl Airport	Atlanta-Sandy Springs-Roswell, GA MSA
10	USA MA Boston Logan Int'l Airport	Boston-Cambridge-Newton, MA-NH MSA
11	USA CA San Francisco Intl Airport	San Francisco-Oakland-Hayward, CA MSA
12	USA AZ Phoenix Sky Harbor Intl Airport	Phoenix-Mesa-Scottsdale, AZ MSA
13	USA CA Riverside Municipal Airport	Riverside-San Bernardino-Ontario, CA MSA
14	USA MI Detroit City Airport	Detroit-Warren-Dearborn, MI MSA
15	USA WA Seattle Seattle-Tacoma Intl Airport	Seattle-Tacoma-Bellevue, WA MSA
16	USA MN Minneapolis-St. Paul Int'l Arp	Minneapolis-St. Paul-Bloomington, MN-WI MSA
17	USA CA San Diego Lindbergh Field	San Diego-Carlsbad, CA MSA
18	USA FL Tampa Int'l Airport	Tampa-St. Petersburg-Clearwater, FL MSA
19	USA MO St Louis Lambert Int'l Airport	St. Louis, MO-IL MSA
20	USA MD Baltimore-Washington Int'l Airport	Baltimore-Columbia-Towson, MD MSA
21	USA CO Denver Centennial [Golden - NREL]	Denver-Aurora-Lakewood, CO MSA
22	USA PA Pittsburgh Allegheny Co Airport	Pittsburgh, PA MSA
23	USA NC Charlotte Douglas Intl Airport	Charlotte-Concord-Gastonia, NC-SC MSA
24	USA OR Portland Hillsboro	Portland-Vancouver-Hillsboro, OR-WA MSA
25	USA TX San Antonio Intl Airport	San Antonio-New Braunfels, TX MSA
26	USA FL Orlando Intl Airport	Orlando-Kissimmee-Sanford, FL MSA
27	USA CA Sacramento Executive Airport	Sacramento-Roseville-Arden-Arcade, CA MSA
28	USA OH Cincinnati Municipal Airport	Cincinnati, OH-KY-IN MSA
29	USA OH Cleveland Hopkins Intl Airport	Cleveland-Elyria, OH MSA
30	USA MO Kansas City Int'l Airport	Kansas City, MO-KS MSA
31	USA NV Las Vegas McCarran Intl Airport	Las Vegas-Henderson-Paradise, NV MSA
32	USA OH Columbus Port Columbus Intl A	Columbus, OH MSA
33	USA IN Indianapolis Intl Airport	Indianapolis-Carmel-Anderson, IN MSA
34	USA CA San Jose Intl Airport	San Jose-Sunnyvale-Santa Clara, CA MSA
35	USA TX Austin Mueller Municipal Airport	Austin-Round Rock, TX MSA
36	USA TN Nashville Int'l Airport	Nashville-Davidson-Murfreesboro-Franklin, TN MSA

37	USA VA Norfolk Int'l Airport	Virginia Beach-Norfolk-Newport News, VA-NC MSA
38	USA RI Providence T F Green State	Providence-Warwick, RI-MA MSA
39	USA WI Milwaukee Mitchell Intl Airport	Milwaukee-Waukesha-West Allis, WI MSA
40	USA FL Jacksonville Craig	Jacksonville, FL MSA
41	USA TN Memphis Int'l Airport	Memphis, TN-MS-AR MSA
42	USA OK Oklahoma City Will Rogers	Oklahoma City, OK MSA
43	USA KY Louisville Bowman Field	Louisville/Jefferson County, KY-IN MSA
44	USA VA Richmond Int'l Airport	Richmond, VA MSA
45	USA LA New Orleans Alvin Callender	New Orleans-Metairie, LA MSA
46	USA CT Hartford Bradley Intl Airport	Hartford-West Hartford-East Hartford, CT MSA
47	USA NC Raleigh Durham Int'l	Raleigh, NC MSA
48	USA UT Salt Lake City Int'l Airport	Salt Lake City, UT MSA
49	USA AL Birmingham Municipal Airport	Birmingham-Hoover, AL MSA
50	USA NY Buffalo Niagara Intl Airport	Buffalo-Cheektowaga-Niagara Falls, NY MSA
51	USA NY Rochester Greater Rochester	Rochester, NY MSA
52	USA MI Grand Rapids Kent County Int'l Airport	Grand Rapids-Wyoming, MI MSA
53	USA AZ Tucson Int'l Airport	Tucson, AZ MSA
54	USA HI Honolulu Intl Airport	Urban Honolulu, HI MSA
55	USA OK Tulsa Int'l Airport	Tulsa, OK MSA
56	USA CA Fresno Yosemite Intl Airport	Fresno, CA MSA
57	USA CT Bridgeport Sikorsky Memorial	Bridgeport-Stamford-Norwalk, CT MSA
58	USA MA Worcester Regional Airport	Worcester, MA-CT MSA
59	USA NM Albuquerque Intl Airport	Albuquerque, NM MSA
60	USA NE Omaha Eppley Airfield	Omaha-Council Bluffs, NE-IA MSA
61	USA NY Albany County Airport	Albany-Schenectady-Troy, NY MSA
62	USA CA Bakersfield Meadows Field	Bakersfield, CA MSA
63	USA CT New Haven Tweed Airport	New Haven-Milford, CT MSA
64	USA TN Knoxville McGhee Tyson Airport	Knoxville, TN MSA
65	USA SC Greenville Downtown Airport	Greenville-Anderson-Mauldin, SC MSA
66	USA CA Oxnard Airport	Oxnard-Thousand Oaks-Ventura, CA MSA
67	USA TX El Paso Int'l Airport	El Paso, TX MSA
68	USA PA Allentown Lehigh Valley Intl	Allentown-Bethlehem-Easton, PA-NJ MSA
69	USA LA Baton Rouge Ryan Airport	Baton Rouge, LA MSA
70	USA TX McCallen Miller Intl Airport	McAllen-Edinburg-Mission, TX MSA
71	USA OH Dayton Int'l Airport	Dayton, OH MSA
72	USA SC Columbia Metro Airport	Columbia, SC MSA
73	USA NC Greensboro Piedmont Triad Int'l Airport	Greensboro-High Point, NC MSA
74	USA FL Sarasota Bradenton	North Port-Sarasota-Bradenton, FL MSA
75	USA AR Little Rock Adams Field	Little Rock-North Little Rock-Conway, AR MSA
76	USA SC Charleston Intl Airport	Charleston-North Charleston, SC MSA
77	USA OH Akron Akron-canton Reg. Airport	Akron, OH MSA
78	USA CA Stockton Metropolitan Airport	Stockton-Lodi, CA MSA

79	USA CO Colorado Springs Muni Airport	Colorado Springs, CO MSA
80	USA NY Syracuse Hancock Int'l Airport	Syracuse, NY MSA
81	USA FL Fort Myers Page Field	Cape Coral-Fort Myers, FL MSA
82	USA NC Winston-Salem Reynolds Airport	Winston-Salem, NC MSA
83	USA ID Boise Air Terminal	Boise City, ID MSA
84	USA KS Wichita Mid-continent Airport	Wichita, KS MSA
85	USA WI Madison Dane Co Regional Airport	Madison, WI MSA
86	USA MA Worcester Regional Airport	Springfield, MA MSA
87	USA FL Lakeland Linder Regional Airport	Lakeland-Winter Haven, FL MSA
88	USA UT Ogden Hinkley Airport	Ogden-Clearfield, UT MSA
89	USA OH Toledo Express Airport	Toledo, OH MSA
90	USA FL Daytona Beach Intl Airport	Deltona-Daytona Beach-Ormond Beach, FL MSA
91	USA IA Des Moines Intl Airport	Des Moines-West Des Moines, IA MSA
92	USA GA Augusta Bush Field	Augusta-Richmond County, GA-SC MSA
93	USA MS Jackson Int'l Airport	Jackson, MS MSA
94	USA UT Provo Muni	Provo-Orem, UT MSA
95	USA PA Wilkes-Barre Scranton Intl Airport	Scranton-Wilkes-Barre-Hazleton, PA MSA
96	USA PA Harrisburg Capital City Airport	Harrisburg-Carlisle, PA MSA
97	USA OH Youngstown Regional Airport	Youngstown-Warren-Boardman, OH-PA MSA
98	USA FL Melbourne Regional Airport	Palm Bay-Melbourne-Titusville, FL MSA
99	USA TN Chattanooga Lovell Field Airport	Chattanooga, TN-GA MSA
100	USA WA Spokane Int'l Airport	Spokane-Spokane Valley, WA MSA

Appendix 2 – Flow diagram of data sources and analysis



¹ The basic technique employed is described in the paper “Model-Based Sampling and Inference,” on the EIA website. Additional references can be found on the InterStat website (<http://interstat.statjournals.net/>). See the following sources: Knaub, J.R., Jr. (1999a), “Using Prediction-Oriented Software for Survey Estimation,” InterStat, August 1999, <http://interstat.statjournals.net/>; Knaub, J.R. Jr. (1999b), “Model-Based Sampling, Inference and Imputation,” EIA web site: <http://www.eia.gov/cneaf/electricity/forms/eiawebme.pdf>; Knaub, J.R., Jr. (2005), “Classical Ratio Estimator,” InterStat, October 2005, <http://interstat.statjournals.net/>; Knaub, J.R., Jr. (2007a), “Cutoff Sampling and Inference,” InterStat, April 2007, <http://interstat.statjournals.net/>; Knaub, J.R., Jr. (2008), “Cutoff Sampling.” Definition in Encyclopedia of Survey Research Methods, Editor: Paul J. Lavrakas, Sage, to appear; Knaub, J.R., Jr. (2000), “Using Prediction-Oriented Software for Survey Estimation - Part II: Ratios of Totals,” InterStat, June 2000, <http://interstat.statjournals.net/>; Knaub, J.R., Jr. (2001), “Using Prediction-Oriented Software for Survey Estimation - Part III: Full-Scale Study of Variance and Bias,” InterStat, June 2001, <http://interstat.statjournals.net/>.

² Due to the restructuring of the electric power industry, many plants which had historically submitted this information for utility plants on the FERC Form 423 (see subsequent section) were being transferred to the nonutility sector. As a result, a large percentage of fossil fuel receipts were no longer being reported. The Form EIA-423 was implemented to fill this void and to capture the data associated with existing nonregulated power producers. Its design closely follows that of the FERC Form 423.

³ The basic technique employed is described in the paper “Model-Based Sampling and Inference,” on the EIA website. Additional references can be found on the InterStat website (<http://interstat.statjournals.net/>). See the following sources: Knaub, J.R., Jr. (1999a), “Using Prediction-Oriented Software for Survey Estimation,” InterStat, August 1999, <http://interstat.statjournals.net/>; Knaub, J.R. Jr. (1999b), “Model-Based Sampling, Inference and Imputation,” EIA web site: <http://www.eia.gov/cneaf/electricity/forms/eiawebme.pdf>; Knaub, J.R., Jr. (2005), “Classical Ratio Estimator,” InterStat, October 2005, <http://interstat.statjournals.net/>; Knaub, J.R., Jr. (2007a), “Cutoff Sampling and Inference,” InterStat, April 2007, <http://interstat.statjournals.net/>; Knaub, J.R., Jr. (2008), “Cutoff Sampling.” Definition in Encyclopedia of Survey Research Methods, Editor: Paul J. Lavrakas, Sage, to appear; Knaub, J.R., Jr. (2000), “Using Prediction-Oriented Software for Survey Estimation - Part II: Ratios of Totals,” InterStat, June 2000, <http://interstat.statjournals.net/>; Knaub, J.R., Jr. (2001), “Using Prediction-Oriented Software for Survey Estimation - Part III: Full-Scale Study of Variance and Bias,” InterStat, June 2001, <http://interstat.statjournals.net/>.

⁴ See the following sources: Bahillo, A. et al. Journal of Energy Resources Technology, “NOx and N2O Emissions During Fluidized Bed Combustion of Leather Wastes.” Volume 128, Issue 2, June 2006. pp. 99-103; U.S. Energy Information Administration. *Renewable Energy Annual 2004*. “Average Heat Content of Selected Biomass Fuels.” Washington, DC, 2005; Penn State Agricultural College Agricultural and Biological Engineering and Council for Solid Waste Solutions. Garth, J. and Kowal, P. Resource Recovery, Turning Waste into Energy, University Park, PA, 1993; Utah State University Recycling Center Frequently Asked Questions

⁵ Biogenic components include newsprint, paper, containers and packaging, leather, textiles, yard trimmings, food wastes, and wood. Non-biogenic components include plastics, rubber and other miscellaneous non-biogenic waste.

⁶ A boiler’s firing configuration relates to the arrangement of the fuel burners in the boiler, and whether the boiler is of conventional or cyclone design. Wet- and dry-bottom boilers use different methods to collect a portion of the ash that results from burning coal. For information on wet- and dry-bottom boilers, see the EIA Glossary at <http://www.eia.gov/glossary/index.html>. Additional information on wet- and dry-bottom boilers and on other aspects of boiler design and operation, including the differences between conventional and cyclone designs, can be found in Babcock and Wilcox, *Steam: Its Generation and Use*, 41st Edition, 2005.

⁷ Boilers that rely entirely on waste heat to create steam, including the heat recovery portion of most combined cycle plants, did not report on the historical Form EIA-767 or EIA-923.

⁸ The “All Other” firing configuration category includes, for example, arch firing and concentric firing. For a full list of firing method options for reporting on the historical Form EIA-767, see the form instructions, page xi, at http://www.eia.gov/survey/form/eia_767/instructions_form.pdf.