



Independent Statistics & Analysis

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Due to corrections to Kapaia Power Station's (Plant ID 56258) 2008 through 2018 petroleum liquid stocks; the addition of several fuel cell power plants, with corresponding fuel consumption and electricity generation data, to the 2018 data; and revisions to 2018 fuel stocks based on an updated methodology used to calculate fuel stocks, EIA has revised tables 1.1; 1.2; 1.3; 3.1.A; 3.3.A; 3.7; 3.11; 5.4.A; 5.4.C; 5.4.D; 5.4.F; 5.12; 6.1; 6.2; 6.3; 6.4; and 7.8.

This report was prepared by the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government.



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EIA Electric Industry Data Collection

Chapter 1

National Summary Data

Table 1.1. Total Electric Power Industry Summary Statistics, 2018 and 2017

Net Generation and Consumption of Fuels for January through December														
		Total (All Sectors)			Electric Power Sector				Commercial		Industrial		Residential	
					Electric Utilities		Independent Power Producers							
Fuel	Facility Type	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
Net Generation (Thousand Megawatthours)														
Coal	Utility Scale Facilities	1,149,487	1,205,835	-4.7%	863,505	893,639	278,668	304,198	303	329	7,011	7,669	0	0
Petroleum Liquids	Utility Scale Facilities	16,245	12,414	30.9%	10,108	8,567	5,487	3,281	132	103	517	463	0	0
Petroleum Coke	Utility Scale Facilities	8,981	8,976	0.1%	6,817	6,711	1,516	1,480	7	8	640	776	0	0
Natural Gas	Utility Scale Facilities	1,469,133	1,296,442	13.3%	720,206	623,834	645,616	572,919	8,419	8,042	94,892	91,647	0	0
Other Gas	Utility Scale Facilities	13,463	12,469	8.0%	151	149	3,935	3,978	0	0	9,377	8,343	0	0
Nuclear	Utility Scale Facilities	807,084	804,950	0.3%	424,251	424,485	382,833	380,465	0	0	0	0	0	0
Hydroelectric Conventional	Utility Scale Facilities	292,524	300,333	-2.6%	267,336	275,677	23,812	23,034	227	240	1,149	1,382	0	0
Renewable Sources Excluding Hydroelectric	Utility Scale Facilities	414,292	386,250	7.3%	49,100	46,111	333,491	308,338	3,214	3,251	28,487	28,550	0	0
... Wind	Utility Scale Facilities	272,667	254,303	7.2%	38,466	37,068	233,931	217,006	174	144	97	84	0	0
... Solar Thermal and Photovoltaic	Utility Scale Facilities	63,825	53,287	19.8%	4,916	3,348	58,337	49,376	525	521	47	42	0	0
... Wood and Wood-Derived Fuels	Utility Scale Facilities	40,936	41,124	-0.5%	3,364	3,226	10,021	10,416	77	70	27,475	27,412	0	0
... Other Biomass	Utility Scale Facilities	20,896	21,610	-3.3%	1,344	1,448	16,279	16,636	2,404	2,515	868	1,012	0	0
... Geothermal	Utility Scale Facilities	15,967	15,927	0.3%	1,009	1,022	14,924	14,905	33	0	0	0	0	0
Hydroelectric Pumped Storage	Utility Scale Facilities	-5,905	-6,495	-9.1%	-4,785	-5,448	-1,119	-1,047	0	0	0	0	0	0
Other Energy Sources	Utility Scale Facilities	12,973	13,096	-0.9%	561	553	6,677	6,527	1,010	1,088	4,725	4,928	0	0
All Energy Sources	Utility Scale Facilities	4,178,277	4,034,271	3.6%	2,337,250	2,274,279	1,680,917	1,603,174	13,312	13,060	146,798	143,758	0	0
Estimated Small Scale Solar Photovoltaic	Small Scale Facilities	29,539	23,990	23.1%	0	0	0	0	9,798	7,685	2,636	2,364	17,105	13,942
Estimated Total Solar Photovoltaic	All Facilities	89,773	74,008	21.3%	4,865	3,326	54,796	46,128	10,324	8,206	2,683	2,406	17,105	13,942
Estimated Total Solar	All Facilities	93,365	77,277	20.8%	4,916	3,348	58,337	49,376	10,324	8,206	2,683	2,406	17,105	13,942
Consumption of Fossil Fuels for Electricity Generation														
Coal (1000 tons)	Utility Scale Facilities	636,213	663,911	-4.2%	473,617	484,389	159,976	176,643	87	95	2,534	2,783	0	0
Petroleum Liquids (1000 barrels)	Utility Scale Facilities	28,614	21,696	31.9%	18,345	15,567	9,467	5,461	269	191	534	476	0	0
Petroleum Coke (1000 tons)	Utility Scale Facilities	3,623	3,490	3.8%	2,740	2,731	704	542	2	3	177	214	0	0
Natural Gas (1000 Mcf)	Utility Scale Facilities	10,833,043	9,508,062	13.9%	5,551,181	4,754,893	4,663,935	4,161,984	52,650	50,060	565,276	541,126	0	0
Consumption of Fossil Fuels for Useful Thermal Output														
Coal (1000 tons)	Utility Scale Facilities	13,813	14,667	-5.8%	2,268	2,802	1,356	1,158	490	515	9,700	10,192	0	0
Petroleum Liquids (1000 barrels)	Utility Scale Facilities	2,614	2,012	29.9%	103	72	354	220	350	238	1,807	1,482	0	0
Petroleum Coke (1000 tons)	Utility Scale Facilities	929	977	-4.9%	12	11	93	115	10	15	814	836	0	0
Natural Gas (1000 Mcf)	Utility Scale Facilities	1,205,962	1,168,544	3.2%	43,156	38,740	331,952	309,949	81,856	104,324	748,997	715,532	0	0
Consumption of Fossil Fuels for Electricity Generation and Useful Thermal Output														
Coal (1000 tons)	Utility Scale Facilities	650,027	678,578	-4.2%	475,885	487,192	161,332	177,801	577	610	12,233	12,975	0	0
Petroleum Liquids (1000 barrels)	Utility Scale Facilities	31,228	23,708	31.7%	18,448	15,640	9,820	5,681	619	429	2,341	1,958	0	0
Petroleum Coke (1000 tons)	Utility Scale Facilities	4,552	4,467	1.9%	2,752	2,742	797	657	12	17	991	1,050	0	0
Natural Gas (1000 Mcf)	Utility Scale Facilities	12,039,005	10,676,606	12.8%	5,594,338	4,793,632	4,995,888	4,471,933	134,507	154,383	1,314,273	1,256,658	0	0

Sales, Revenue, and Average Price of Electricity to Ultimate Customers for January through December									
Total U.S. Electric Power Industry									
	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)		
Sector	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Percentage Change
Residential	1,469,093	1,378,648	6.6%	189,033	177,661	6.4%	12.87	12.89	-0.2%
Commercial	1,381,755	1,352,888	2.1%	147,425	144,242	2.2%	10.67	10.66	0.1%
Industrial	1,000,673	984,298	1.7%	69,218	67,691	2.3%	6.92	6.88	0.6%
Transportation	7,665	7,523	1.9%	744	728	2.1%	9.70	9.68	0.2%
All Sectors	3,859,185	3,723,356	3.6%	406,420	390,322	4.1%	10.53	10.48	0.5%

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, 2008 - 2018

(From Table 2.1.) Number of Ultimate Customers

Year	Residential	Commer- cial	Industrial	Transpor- tation	Other	Total
2008	125,037,837	17,582,382	774,808	726	N/A	143,395,753
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

(From Table 2.2.) Sales to Ultimate Customers

(Thousand Megawatthours)

Year	Residential	Commer- cial	Industrial	Transpor- tation	Other	Total
2008	1,380,662	1,336,133	1,009,516	7,653	N/A	3,733,965
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

(From Table 2.3.) Revenue From Ultimate Customers

(Million Dollars)

Year	Residential	Commer- cial	Industrial	Transpor- tation	Other	Total
2008	155,496	137,036	70,231	820	N/A	363,583
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

Table 1.2. Summary Statistics for the United States, 2008 - 2018

(From Table 2.4.) Average Price

(Cents per Kilowatthour)

Year	Residential	Commer- cial	Industrial	Transpor- tation	Other	Total
2008	11.26	10.26	6.96	10.71	N/A	9.74
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

(From Tables 2.12. - 2.14.) Trade

(Thousand Megawatthours)

Year	Purchases	Sales for Resale	Imports	Exports
2008	5,612,781	5,680,733	57,019	24,198
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

(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 Conven- tional	Hydro Pumped Storage	Geothermal	Wind
2008	1,985,801	46,243	882,981	11,707	806,208	254,831	-6,288	14,840	55,363
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

Table 1.2. Summary Statistics for the United States, 2008 - 2018

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
2008	76	788	37,300	17,734	11,804	4,119,388	--	76	864
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

(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
2008	313,322.0	57,445.0	397,460.0	1,995.0	100,755.0	77,930.0	21,858.0	2,229.0	24,651.0
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

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
2008	70.8	464.8	6,864.0	4,186.0	942.0	1,010,171.0	--	70.8	535.6
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

Table 1.2. Summary Statistics for the United States, 2008 - 2018

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
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

(From Chapter 5.) Consumption of Fossil Fuels

	For Electricity Generation				For Useful Thermal Output			
Year	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)
2008	1,042,335	80,932	6,895,843	96,757	22,168	12,016	793,537	203,236
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

	Total			
Year	Coal (Thousand Tons)	Petroleum (Thousand Barrels)	Natural Gas (Millions of Cubic Feet)	Other Gas (Millions of BTU)
2008	1,064,503	92,948	7,689,380	299,993
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

(From Tables 6.1. and 7.1)

Year End Stocks, Annual Receipts and Average Costs

	Electric Power Sector Year End Stocks		Annual Receipts at All Electricity Generators			Average Cost of Fuel at All Electricity Generators		
Year	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)
2008	161,589	44,178	1,069,709	96,341	7,879,046	2.07	10.87	9.02
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

Table 1.2. Summary Statistics for the United States, 2008 - 2018

2012	185,116	33,336	841,183	40,364	9,531,389	2.38	12.48	3.42
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

(From Table 9.1.) Emissions

(Thousand Metric Tons)

Year	Carbon Dioxide (CO ₂)	Sulfur Dioxide (SO ₂)	Nitrogen Oxides (NO _x)
2008	2,484,012	7,830	3,330
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

(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

(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

Table 1.2. Summary Statistics for the United States, 2008 - 2018

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, 2008 through 2018

(From Chapter 3.) Supply (Thousand Megawatthours)

	Generation						
Year	Electric Utilities	IPP (Non-CHP)	IPP (CHP)	Commercial Sector	Industrial Sector	Total Imports	Total Supply
2008	2,475,367	1,332,068	166,915	7,926	137,113	57,019	4,176,407
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

(From Chapter 2.) Disposition (Thousand Megawatthours)

	Retail Sales						
Year	Full-Service Providers	Energy-Only Providers	Facility Direct	Direct Use	Total Exports	Losses and Unaccounted For	Total Disposition
2008	3,436,011	284,386	13,567	132,197	24,198	286,048	4,176,407
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

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, 2008 through 2018

Year	Residential	Commercial	Industrial	Transportation	Total
Total Electric Industry					
2008	125,037,837	17,582,382	774,808	726	143,395,753
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
Full-Service Providers					
2008	122,706,203	16,932,969	756,094	696	140,395,962
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
Energy-Only Providers					
2008	2,331,634	649,413	18,714	30	2,999,791
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

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, 2008 through 2018 (Megawatthours)

Year	Residential	Commercial	Industrial	Transportation	Total	Direct Use	Total End Use
Total Electric Industry							
2008	1,380,661,745	1,336,133,485	1,009,516,178	7,653,211	3,733,964,619	132,196,685	3,866,161,304
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
Full-Service Providers							
2008	1,363,664,159	1,173,581,515	909,792,014	2,540,452	3,449,578,140	N/A	3,449,578,140
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
Energy-Only Providers							
2008	16,997,586	162,551,970	99,724,164	5,112,759	284,386,479	N/A	284,386,479
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

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, 2008 through 2018 (Million Dollars)

Year	Residential	Commercial	Industrial	Transportation	Total
Total Electric Industry					
2008	155,496	137,036	70,231	820	363,583
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
Full-Service Providers					
2008	152,520	115,413	61,117	252	329,301
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
Competitive Service Providers					
2008	2,977	21,623	9,114	568	34,282
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
Energy-Only Providers					
2008	1,859	15,661	7,506	448	25,474
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
Delivery-Only Providers					
2008	1,118	5,962	1,608	120	8,808
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

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 2008 through 2018 (Cents per kilowatthour)

Year	Residential	Commercial	Industrial	Transportation	Total
Total Electric Industry					
2008	11.26	10.26	6.96	10.71	9.74
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
Full-Service Providers					
2008	11.18	9.83	6.72	9.91	9.55
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
Competitive Service Providers					
2008	17.51	13.30	9.14	11.11	12.05
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
Energy-Only Providers					
2008	10.94	9.63	7.53	8.77	8.96
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
Delivery-Only Providers					
2008	6.58	3.67	1.61	2.35	3.10
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

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, 2008 - December 2018 (Thousand Megawatthours)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2008	1,380,662	1,336,133	1,009,516	7,653	3,733,965
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
Year 2016					
January	130,972	110,410	78,848	660	320,890
February	115,959	103,452	76,748	646	296,806
March	100,227	105,739	79,237	609	285,812
April	88,244	102,045	78,647	595	269,531
May	94,198	108,437	81,491	581	284,708
June	125,211	120,363	83,672	631	329,878
July	154,409	130,038	87,076	648	372,172
August	156,442	135,019	89,101	631	381,192
September	129,363	123,493	83,259	637	336,752
October	101,508	112,963	81,597	613	296,681
November	93,244	105,060	78,421	592	277,317
December	121,281	110,172	78,616	653	310,722
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

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, 2008 - December 2018 (Million Dollars)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2008	155,496	137,036	70,231	820	363,583
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
Year 2016					
January	15,704	11,133	5,080	63	31,980
February	14,076	10,605	4,927	62	29,670
March	12,593	10,815	5,122	58	28,587
April	10,967	10,398	5,065	57	26,486
May	12,048	11,184	5,357	54	28,643
June	15,942	12,828	5,879	62	34,710
July	19,575	13,891	6,294	64	39,823
August	20,157	14,530	6,440	63	41,191
September	16,652	13,298	5,947	64	35,961
October	12,648	11,914	5,491	59	30,111
November	11,886	10,840	5,225	55	28,007
December	14,830	11,206	5,242	62	31,339
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

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.

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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, 2008 - December 2018 (Cents per Kilowatthour)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2008	11.26	10.26	6.96	10.71	9.74
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
Year 2016					
January	11.99	10.08	6.44	9.52	9.97
February	12.14	10.25	6.42	9.61	10.00
March	12.56	10.23	6.46	9.56	10.00
April	12.43	10.19	6.44	9.53	9.83
May	12.79	10.31	6.57	9.28	10.06
June	12.73	10.66	7.03	9.75	10.52
July	12.68	10.68	7.23	9.84	10.70
August	12.88	10.76	7.23	10.04	10.81
September	12.87	10.77	7.14	10.00	10.68
October	12.46	10.55	6.73	9.62	10.15
November	12.75	10.32	6.66	9.22	10.10
December	12.23	10.17	6.67	9.49	10.09
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

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.

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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, 2018 and 2017 (Thousand Megawatthours)

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	48,099	45,849	52,924	52,190	17,054	16,867	557	553	118,634	115,458
Connecticut	13,061	12,380	12,381	12,335	3,210	3,244	181	177	28,834	28,136
Maine	4,872	4,639	4,447	3,917	3,036	2,658	0	0	12,355	11,214
Massachusetts	20,285	19,338	25,952	25,968	6,699	6,859	349	348	53,285	52,513
New Hampshire	4,641	4,441	4,443	4,390	1,963	1,956	0	0	11,046	10,787
Rhode Island	3,124	3,028	3,698	3,603	735	726	27	28	7,583	7,385
Vermont	2,116	2,023	2,004	1,977	1,411	1,424	0	0	5,531	5,424
Middle Atlantic	137,580	128,567	158,774	155,927	74,601	73,044	3,968	3,828	374,923	361,366
New Jersey	29,531	27,762	38,807	37,971	7,369	7,343	310	307	76,017	73,383
New York	52,153	49,081	76,745	75,333	18,077	17,811	2,954	2,767	149,930	144,992
Pennsylvania	55,896	51,724	43,222	42,623	49,155	47,889	703	755	148,977	142,991
East North Central	193,825	179,275	185,278	181,770	195,875	192,154	615	586	575,593	553,784
Illinois	47,226	43,717	50,763	49,988	44,115	42,971	551	520	142,655	137,196
Indiana	34,575	31,552	24,305	23,657	45,293	43,737	21	20	104,194	98,966
Michigan	35,131	32,977	38,925	38,325	30,806	30,591	7	6	104,869	101,899
Ohio	54,452	49,796	47,192	46,158	51,236	50,651	36	39	152,915	146,644
Wisconsin	22,441	21,233	24,093	23,641	24,425	24,205	0	0	70,960	69,079
West North Central	109,892	100,529	104,457	101,871	94,080	93,190	49	47	308,478	295,637
Iowa	14,840	13,722	12,418	12,135	23,953	23,065	0	0	51,211	48,922
Kansas	14,187	13,013	16,169	15,739	11,681	11,535	0	0	42,037	40,288
Minnesota	22,837	21,574	23,399	23,274	22,447	22,281	26	24	68,708	67,153
Missouri	37,463	33,051	31,179	30,177	13,390	13,211	24	23	82,056	76,461
Nebraska	10,412	9,668	9,553	9,293	10,974	11,398	0	0	30,939	30,359
North Dakota	5,133	4,848	6,836	6,530	8,700	8,762	0	0	20,670	20,140
South Dakota	5,018	4,653	4,903	4,723	2,935	2,938	0	0	12,857	12,314
South Atlantic	374,135	349,290	317,277	309,752	142,648	140,374	1,331	1,301	835,391	800,717
Delaware	5,070	4,663	4,342	4,185	2,361	2,281	0	0	11,773	11,129
District of Columbia	2,592	2,395	8,236	8,006	193	180	337	335	11,358	10,916
Florida	125,528	121,463	96,265	95,004	16,689	16,602	83	86	238,565	233,155
Georgia	59,689	54,771	47,312	46,265	32,696	32,251	170	169	139,866	133,457
Maryland	28,138	26,084	29,548	28,893	3,870	3,798	530	529	62,086	59,304
North Carolina	61,622	56,134	49,298	47,890	27,354	27,393	13	4	138,287	131,421
South Carolina	31,852	29,225	22,233	21,758	27,556	27,114	0	0	81,641	78,097
Virginia	47,963	43,982	52,268	50,201	17,737	17,169	199	178	118,166	111,530
West Virginia	11,679	10,573	7,774	7,549	14,193	13,586	0	0	33,647	31,709
East South Central	124,486	111,800	94,924	90,020	100,783	102,125	0	0	320,192	303,945
Alabama	33,080	30,181	23,483	22,744	33,717	33,317	0	0	90,280	86,242
Kentucky	27,713	24,883	19,980	19,293	28,917	28,459	0	0	76,611	72,634
Mississippi	19,311	17,444	14,530	14,256	16,549	16,129	0	0	50,390	47,829
Tennessee	44,382	39,293	36,930	33,727	21,599	24,220	0	0	102,911	97,240
West South Central	232,709	212,638	201,723	194,398	198,150	192,433	201	196	632,783	599,664
Arkansas	19,259	17,027	12,278	11,913	18,065	17,146	0	0	49,603	46,086
Louisiana	32,066	29,532	24,691	24,500	37,417	37,161	13	13	94,186	91,206
Oklahoma	24,117	21,838	21,229	20,499	19,229	18,156	0	0	64,575	60,492
Texas	157,268	144,242	143,525	137,486	123,439	119,970	187	182	424,419	401,880
Mountain	100,312	98,536	99,065	97,122	83,788	82,211	161	145	283,325	278,014
Arizona	34,660	34,251	29,684	29,681	13,994	13,706	8	8	78,346	77,646
Colorado	19,287	18,615	21,023	20,641	16,047	15,501	93	73	56,450	54,830
Idaho	8,428	8,728	6,437	6,421	8,889	8,645	0	0	23,754	23,794
Montana	5,198	5,225	4,921	4,970	4,720	4,515	0	0	14,839	14,710
Nevada	13,450	12,937	12,124	11,123	12,198	12,590	8	9	37,780	36,658
New Mexico	6,826	6,497	9,035	8,784	8,187	7,728	0	0	24,049	23,010
Utah	9,715	9,511	12,084	11,739	9,393	9,283	51	56	31,242	30,589
Wyoming	2,748	2,772	3,757	3,762	10,359	10,244	0	0	16,865	16,778
Pacific Contiguous	143,370	147,472	161,653	164,053	88,750	86,868	783	867	394,556	399,260
California	89,100	90,124	115,786	117,682	49,588	48,627	750	835	255,224	257,268
Oregon	18,931	20,066	16,470	16,571	13,899	13,382	26	25	49,326	50,044
Washington	35,339	37,283	29,396	29,800	25,263	24,859	7	7	90,006	91,948
Pacific Noncontiguous	4,686	4,690	5,679	5,787	4,945	5,033	0	0	15,310	15,510
Alaska	1,975	2,060	2,646	2,705	1,352	1,421	0	0	5,972	6,186
Hawaii	2,711	2,630	3,033	3,082	3,593	3,613	0	0	9,337	9,324
U.S. Total	1,469,093	1,378,648	1,381,755	1,352,888	1,000,673	984,298	7,665	7,523	3,859,185	3,723,356

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, 2018 and 2017 (Million Dollars)

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	9,910	8,897	8,709	8,080	2,249	2,114	50	46	20,918	19,138
Connecticut	2,769	2,512	2,075	1,981	442	425	23	19	5,309	4,938
Maine	821	741	556	475	283	245	0	0	1,660	1,460
Massachusetts	4,383	3,879	4,457	4,138	998	952	22	22	9,860	8,991
New Hampshire	914	853	703	650	263	241	0	0	1,880	1,744
Rhode Island	642	555	613	548	113	106	5	5	1,373	1,213
Vermont	381	358	305	289	150	145	0	0	837	792
Middle Atlantic	21,974	20,552	19,729	19,601	5,191	5,040	441	431	47,336	45,624
New Jersey	4,550	4,344	4,737	4,663	742	743	28	27	10,057	9,777
New York	9,659	8,849	11,128	11,111	1,088	1,055	359	350	22,233	21,366
Pennsylvania	7,765	7,359	3,864	3,826	3,362	3,242	55	54	15,045	14,481
East North Central	25,681	23,951	18,887	18,465	13,912	13,598	43	39	58,523	56,053
Illinois	6,029	5,662	4,631	4,543	2,999	2,782	37	33	13,696	13,020
Indiana	4,240	3,878	2,576	2,495	3,343	3,298	2	2	10,161	9,673
Michigan	5,427	5,078	4,339	4,217	2,187	2,201	1	1	11,954	11,496
Ohio	6,840	6,287	4,769	4,640	3,592	3,503	3	3	15,203	14,433
Wisconsin	3,146	3,046	2,571	2,571	1,791	1,814	0	0	7,508	7,430
West North Central	13,184	12,190	10,223	9,995	6,845	6,685	4	4	30,256	28,874
Iowa	1,817	1,693	1,203	1,148	1,546	1,432	0	0	4,566	4,273
Kansas	1,894	1,732	1,723	1,667	887	870	0	0	4,505	4,270
Minnesota	3,001	2,814	2,429	2,439	1,689	1,643	2	2	7,122	6,898
Missouri	4,249	3,844	2,931	2,858	966	968	2	2	8,148	7,672
Nebraska	1,114	1,060	843	822	834	873	0	0	2,792	2,756
North Dakota	526	499	622	600	694	669	0	0	1,842	1,768
South Dakota	582	548	472	460	228	230	0	0	1,282	1,238
South Atlantic	43,771	41,439	29,507	29,092	9,299	9,128	105	102	82,683	79,761
Delaware	635	622	419	414	188	177	0	0	1,242	1,214
District of Columbia	333	310	986	933	16	15	32	30	1,367	1,288
Florida	14,485	14,098	8,845	8,882	1,276	1,299	7	7	24,614	24,286
Georgia	6,847	6,517	4,633	4,667	1,963	1,922	9	9	13,453	13,115
Maryland	3,742	3,641	3,083	3,107	318	318	39	41	7,182	7,106
North Carolina	6,835	6,138	4,229	4,043	1,732	1,699	1	0	12,797	11,881
South Carolina	3,963	3,804	2,248	2,301	1,681	1,677	0	0	7,891	7,783
Virginia	5,624	5,079	4,347	4,023	1,217	1,118	16	14	11,204	10,234
West Virginia	1,306	1,230	719	723	908	903	0	0	2,933	2,855
East South Central	13,862	12,633	9,983	9,546	5,891	6,058	0	0	29,736	28,236
Alabama	4,028	3,787	2,639	2,638	2,028	2,052	0	0	8,694	8,476
Kentucky	2,936	2,700	1,946	1,900	1,643	1,627	0	0	6,525	6,227
Mississippi	2,147	1,933	1,516	1,449	993	966	0	0	4,655	4,348
Tennessee	4,752	4,214	3,882	3,559	1,228	1,413	0	0	9,861	9,185
West South Central	25,056	22,828	16,564	16,221	10,703	10,485	16	16	52,340	49,550
Arkansas	1,889	1,750	951	1,014	1,019	1,041	0	0	3,859	3,805
Louisiana	3,074	2,875	2,185	2,193	2,003	2,036	1	1	7,263	7,105
Oklahoma	2,484	2,317	1,713	1,662	1,027	984	0	0	5,224	4,963
Texas	17,610	15,886	11,715	11,352	6,654	6,424	15	15	35,994	33,678
Mountain	11,974	11,717	9,470	9,333	5,407	5,388	15	14	26,866	26,452
Arizona	4,425	4,259	3,158	3,115	916	884	1	1	8,501	8,259
Colorado	2,343	2,265	2,106	2,041	1,199	1,163	8	7	5,655	5,476
Idaho	855	876	511	513	575	576	0	0	1,941	1,965
Montana	570	572	497	503	245	237	0	0	1,312	1,312
Nevada	1,593	1,550	939	886	744	775	1	1	3,277	3,212
New Mexico	866	837	905	895	478	476	0	0	2,250	2,208
Utah	1,011	1,042	994	1,015	554	569	5	6	2,565	2,632
Wyoming	310	315	360	365	695	709	0	0	1,365	1,389
Pacific Contiguous	22,308	22,240	22,954	22,573	8,552	8,135	68	75	53,882	53,023
California	16,782	16,501	18,924	18,552	6,546	6,190	65	72	42,318	41,315
Oregon	2,079	2,139	1,468	1,468	814	801	2	2	4,364	4,409
Washington	3,446	3,601	2,562	2,553	1,191	1,144	1	1	7,200	7,299
Pacific Noncontiguous	1,313	1,214	1,398	1,336	1,169	1,060	0	0	3,881	3,610
Alaska	433	438	492	511	231	232	0	0	1,156	1,181
Hawaii	880	776	907	825	938	828	0	0	2,725	2,429
U.S. Total	189,033	177,661	147,425	144,242	69,218	67,691	744	728	406,420	390,322

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, 2018 and 2017 (Cents per Kilowatthour)

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	20.60	19.41	16.46	15.48	13.19	12.54	9.00	8.28	17.63	16.58
Connecticut	21.20	20.29	16.76	16.06	13.77	13.10	12.84	10.95	18.41	17.55
Maine	16.84	15.97	12.51	12.12	9.32	9.20	--	--	13.44	13.02
Massachusetts	21.61	20.06	17.17	15.93	14.89	13.88	6.38	6.22	18.50	17.12
New Hampshire	19.69	19.20	15.81	14.81	13.42	12.34	--	--	17.01	16.17
Rhode Island	20.55	18.32	16.58	15.20	15.39	14.57	17.00	17.08	18.10	16.42
Vermont	18.02	17.68	15.24	14.61	10.66	10.21	--	--	15.13	14.60
Middle Atlantic	15.97	15.99	12.43	12.57	6.96	6.90	11.13	11.27	12.63	12.63
New Jersey	15.41	15.65	12.21	12.28	10.07	10.12	9.07	8.81	13.23	13.32
New York	18.52	18.03	14.50	14.75	6.02	5.92	12.14	12.67	14.83	14.74
Pennsylvania	13.89	14.23	8.94	8.98	6.84	6.77	7.78	7.16	10.10	10.13
East North Central	13.25	13.36	10.19	10.16	7.10	7.08	6.96	6.65	10.17	10.12
Illinois	12.77	12.95	9.12	9.09	6.80	6.47	6.75	6.35	9.60	9.49
Indiana	12.26	12.29	10.60	10.54	7.38	7.54	10.44	11.23	9.75	9.77
Michigan	15.45	15.40	11.15	11.00	7.10	7.19	10.76	11.99	11.40	11.28
Ohio	12.56	12.63	10.11	10.05	7.01	6.92	7.33	7.50	9.94	9.84
Wisconsin	14.02	14.35	10.67	10.87	7.33	7.49	13.85	14.31	10.58	10.76
West North Central	12.00	12.13	9.79	9.81	7.28	7.17	9.07	9.01	9.81	9.77
Iowa	12.24	12.34	9.68	9.46	6.45	6.21	--	--	8.92	8.73
Kansas	13.35	13.31	10.66	10.59	7.60	7.54	--	--	10.72	10.60
Minnesota	13.14	13.04	10.38	10.48	7.52	7.37	9.58	9.56	10.37	10.27
Missouri	11.34	11.63	9.40	9.47	7.22	7.33	8.52	8.42	9.93	10.03
Nebraska	10.70	10.97	8.83	8.85	7.60	7.66	--	--	9.02	9.08
North Dakota	10.25	10.29	9.10	9.19	7.98	7.63	--	--	8.91	8.78
South Dakota	11.59	11.77	9.62	9.74	7.77	7.84	--	--	9.97	10.05
South Atlantic	11.70	11.86	9.30	9.39	6.52	6.50	7.91	7.84	9.90	9.96
Delaware	12.53	13.35	9.65	9.89	7.95	7.78	--	--	10.55	10.90
District of Columbia	12.84	12.94	11.97	11.66	8.30	8.23	9.54	8.90	12.03	11.80
Florida	11.54	11.61	9.19	9.35	7.65	7.83	8.26	8.62	10.32	10.42
Georgia	11.47	11.90	9.79	10.09	6.00	5.96	5.52	5.35	9.62	9.83
Maryland	13.30	13.96	10.43	10.75	8.23	8.37	7.44	7.74	11.57	11.98
North Carolina	11.09	10.94	8.58	8.44	6.33	6.20	8.02	8.55	9.25	9.04
South Carolina	12.44	13.02	10.11	10.57	6.10	6.19	--	--	9.67	9.97
Virginia	11.73	11.55	8.32	8.01	6.86	6.51	8.28	8.11	9.48	9.18
West Virginia	11.18	11.63	9.24	9.58	6.40	6.64	--	--	8.72	9.00
East South Central	11.14	11.30	10.52	10.60	5.85	5.93	--	--	9.29	9.29
Alabama	12.18	12.55	11.24	11.60	6.01	6.16	--	--	9.63	9.83
Kentucky	10.60	10.85	9.74	9.85	5.68	5.72	--	--	8.52	8.57
Mississippi	11.12	11.08	10.43	10.17	6.00	5.99	--	--	9.24	9.09
Tennessee	10.71	10.72	10.51	10.55	5.68	5.83	--	--	9.58	9.45
West South Central	10.77	10.74	8.21	8.34	5.40	5.45	8.16	8.28	8.27	8.26
Arkansas	9.81	10.28	7.75	8.51	5.64	6.07	11.35	12.26	7.78	8.26
Louisiana	9.59	9.74	8.85	8.95	5.35	5.48	9.21	9.93	7.71	7.79
Oklahoma	10.30	10.61	8.07	8.11	5.34	5.42	--	--	8.09	8.20
Texas	11.20	11.01	8.16	8.26	5.39	5.35	8.08	8.16	8.48	8.38
Mountain	11.94	11.89	9.56	9.61	6.45	6.55	9.53	9.88	9.48	9.51
Arizona	12.77	12.44	10.64	10.50	6.55	6.45	10.02	9.65	10.85	10.64
Colorado	12.15	12.17	10.02	9.89	7.47	7.50	9.00	9.77	10.02	9.99
Idaho	10.15	10.04	7.93	7.98	6.47	6.66	--	--	8.17	8.26
Montana	10.96	10.95	10.11	10.12	5.19	5.25	--	--	8.84	8.92
Nevada	11.85	11.99	7.74	7.96	6.10	6.15	8.31	8.61	8.67	8.76
New Mexico	12.68	12.88	10.02	10.19	5.84	6.15	--	--	9.35	9.59
Utah	10.41	10.95	8.23	8.64	5.90	6.13	10.59	10.26	8.21	8.60
Wyoming	11.29	11.37	9.58	9.70	6.71	6.92	--	--	8.09	8.28
Pacific Contiguous	15.56	15.08	14.20	13.76	9.64	9.36	8.67	8.71	13.66	13.28
California	18.84	18.31	16.34	15.76	13.20	12.73	8.64	8.68	16.58	16.06
Oregon	10.98	10.66	8.91	8.86	5.86	5.98	9.16	9.35	8.85	8.81
Washington	9.75	9.66	8.72	8.57	4.71	4.60	9.38	9.18	8.00	7.94
Pacific Noncontiguous	28.03	25.89	24.62	23.09	23.64	21.06	--	--	25.35	23.28
Alaska	21.94	21.27	18.58	18.89	17.10	16.34	--	--	19.36	19.10
Hawaii	32.47	29.50	29.90	26.77	26.10	22.92	--	--	29.18	26.05
U.S. Total	12.87	12.89	10.67	10.66	6.92	6.88	9.70	9.68	10.53	10.48

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, 2017 and 2018

Census Division and State	Residential		Commercial		Industrial		Transportation		All Sectors	
	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	6,377,606	6,338,673	883,832	885,220	23,028	23,034	7	7	7,284,473	7,246,934
Connecticut	1,503,701	1,495,577	153,824	152,903	4,308	4,385	4	4	1,661,837	1,652,869
Maine	709,848	707,792	96,066	99,331	3,064	3,100	--	--	808,978	810,223
Massachusetts	2,784,243	2,766,154	408,972	409,715	10,503	10,358	2	2	3,203,720	3,186,229
New Hampshire	622,671	618,356	107,805	107,436	3,176	3,220	--	--	733,652	729,012
Rhode Island	442,005	437,124	60,128	59,447	1,773	1,784	1	1	503,907	498,356
Vermont	315,138	313,670	57,037	56,388	204	187	--	--	372,379	370,245
Middle Atlantic	16,149,378	16,037,193	2,345,015	2,305,746	30,504	41,496	20	20	18,524,917	18,384,455
New Jersey	3,568,044	3,536,087	521,429	517,404	11,877	11,773	6	6	4,101,356	4,065,270
New York	7,190,906	7,144,413	1,106,650	1,089,889	6,884	6,997	8	8	8,304,448	8,241,307
Pennsylvania	5,390,428	5,356,693	716,936	698,453	11,743	22,726	6	6	6,119,113	6,077,878
East North Central	20,183,560	20,060,556	2,498,950	2,485,519	53,956	54,136	9	9	22,736,475	22,600,220
Illinois	5,289,573	5,264,333	616,192	611,670	5,717	5,693	3	3	5,911,485	5,881,699
Indiana	2,863,358	2,834,090	354,730	352,015	17,763	17,917	1	1	3,235,852	3,204,023
Michigan	4,365,529	4,344,321	543,261	542,959	5,972	6,196	2	2	4,914,764	4,893,478
Ohio	4,964,855	4,936,471	630,210	627,168	18,715	18,664	2	2	5,613,782	5,582,305
Wisconsin	2,700,245	2,681,341	354,557	351,707	5,789	5,666	1	1	3,060,592	3,038,715
West North Central	9,497,228	9,427,746	1,455,145	1,441,788	124,102	123,910	3	3	11,076,478	10,993,447
Iowa	1,385,756	1,375,599	239,703	237,942	7,890	7,747	--	--	1,633,349	1,621,288
Kansas	1,266,044	1,259,226	234,091	232,078	24,185	24,322	--	--	1,524,320	1,515,626
Minnesota	2,420,325	2,403,168	295,855	292,859	9,066	8,984	1	1	2,725,247	2,705,012
Missouri	2,792,459	2,771,123	384,493	381,634	8,085	8,191	2	2	3,185,039	3,160,950
Nebraska	849,898	841,965	153,749	151,485	61,968	62,066	--	--	1,065,615	1,055,516
North Dakota	382,596	380,101	75,148	74,527	8,985	8,708	--	--	466,729	463,336
South Dakota	400,150	396,564	72,106	71,263	3,923	3,892	--	--	476,179	471,719
South Atlantic	27,947,855	27,592,479	3,788,481	3,743,229	83,599	83,651	13	13	31,819,948	31,419,372
Delaware	432,449	426,071	54,904	54,105	837	854	--	--	488,190	481,030
District of Columbia	274,613	267,448	26,336	26,111	1	1	3	3	300,953	293,563
Florida	9,423,022	9,291,707	1,229,559	1,216,939	21,327	21,289	2	2	10,673,910	10,529,937
Georgia	4,354,021	4,296,977	579,468	572,861	23,065	23,108	1	1	4,956,555	4,892,947
Maryland	2,332,517	2,313,189	254,163	252,966	8,801	8,754	5	5	2,595,486	2,574,914
North Carolina	4,550,420	4,488,039	691,673	680,967	10,025	10,045	1	1	5,252,119	5,179,052
South Carolina	2,290,200	2,251,558	376,842	373,073	4,324	4,379	--	--	2,671,366	2,629,010
Virginia	3,431,574	3,398,529	431,058	422,256	3,704	3,692	1	1	3,866,337	3,824,478
West Virginia	859,039	858,961	144,478	143,951	11,515	11,529	--	--	1,015,032	1,014,441
East South Central	8,382,954	8,316,868	1,404,952	1,394,010	26,090	27,380	--	--	9,813,996	9,738,258
Alabama	2,229,472	2,213,592	371,097	369,984	7,342	8,047	--	--	2,607,911	2,591,623
Kentucky	1,980,209	1,971,002	305,417	304,457	6,750	7,010	--	--	2,292,376	2,282,469
Mississippi	1,290,281	1,284,578	236,871	235,245	10,988	11,156	--	--	1,538,140	1,530,979
Tennessee	2,882,992	2,847,696	491,567	484,324	1,010	1,167	--	--	3,375,569	3,333,187
West South Central	16,387,177	16,014,300	2,363,259	2,279,262	200,568	188,845	6	6	18,951,010	18,482,413
Arkansas	1,388,358	1,380,157	196,482	191,879	36,596	35,595	2	2	1,621,438	1,607,633
Louisiana	2,085,055	2,073,615	292,752	291,404	19,558	19,611	1	1	2,397,366	2,384,631
Oklahoma	1,764,980	1,751,034	282,875	281,267	18,700	18,782	--	--	2,066,555	2,051,083
Texas	11,148,784	10,809,494	1,591,150	1,514,712	125,714	114,857	3	3	12,865,651	12,439,066
Mountain	9,825,511	9,761,430	1,414,958	1,399,023	95,524	95,759	5	5	11,335,998	11,256,217
Arizona	2,808,352	2,764,355	322,135	320,562	7,794	8,133	2	2	3,138,283	3,093,052
Colorado	2,326,976	2,288,358	376,104	370,691	15,985	16,228	1	1	2,719,066	2,675,278
Idaho	743,567	727,568	110,797	108,965	28,418	28,138	--	--	882,782	864,671
Montana	509,526	503,313	108,695	107,147	9,915	9,893	--	--	628,136	620,353
Nevada	1,183,660	1,263,101	164,982	163,356	3,446	3,447	1	1	1,352,089	1,429,905
New Mexico	889,841	880,867	143,874	143,326	9,360	9,395	--	--	1,043,075	1,033,588
Utah	1,091,162	1,063,292	130,053	127,113	9,666	9,594	1	1	1,230,882	1,200,000
Wyoming	272,427	270,576	58,318	57,863	10,940	10,931	--	--	341,685	339,370
Pacific Contiguous	18,418,260	18,311,853	2,337,183	2,310,922	200,749	199,962	20	23	20,956,212	20,822,760
California	13,591,152	13,548,295	1,714,875	1,696,071	148,644	147,754	12	15	15,454,683	15,392,135
Oregon	1,750,240	1,725,884	237,942	233,823	24,821	24,383	2	2	2,013,005	1,984,092
Washington	3,076,868	3,037,674	384,366	381,028	27,284	27,825	6	6	3,488,524	3,446,533
Pacific Noncontiguous	723,792	718,649	113,618	114,708	2,201	2,156	--	--	839,611	835,513
Alaska	287,526	285,697	53,957	53,472	1,387	1,374	--	--	342,870	340,543
Hawaii	436,266	432,952	59,661	61,236	814	782	--	--	496,741	494,970
U.S. Total	133,893,321	132,579,747	18,605,393	18,359,427	840,321	840,329	83	86	153,339,118	151,779,589

**Table 2.12. Electric Power Industry - Electricity Purchases,
2008 through 2018 (Thousand Megawatthours)**

Year	Electric Utilities	Energy-Only Providers	Independent Power Producers	Combined Heat and Power	U.S. Total
2009	2,364,648	2,564,407	27,922	71,669	5,028,647
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

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,
2008 through 2018 (Thousand Megawatthours)**

Year	Electric Utilities	Energy-Only Providers	Independent Power Producers	Combined Heat and Power	U.S. Total
2008	1,576,976	2,718,661	1,355,017	30,079	5,680,733
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

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, 2008-2018 (Megawatthours)

Year	Canada		Mexico		U.S. Total	
	Imports from	Exports to	Imports from	Exports to	Imports	Exports
2008	55,731,229	23,614,158	1,288,152	584,001	57,019,381	24,198,159
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

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, 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), 2008 - 2018
(Thousand Megawatthours)

Period	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	Total Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals															
2008	1,985,801	31,917	14,325	882,981	11,707	806,208	254,831	864	125,237	-6,288	11,804	4,119,388	N/A	N/A	N/A
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
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
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
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
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
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
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
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
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
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
Year 2016															
January	113,459	1,396	966	110,044	1,195	72,525	25,615	1,486	25,193	-312	1,153	352,719	980	2,380	2,465
February	92,705	1,299	910	98,552	1,062	65,638	24,139	2,242	26,496	-399	1,041	313,685	1,145	3,145	3,386
March	72,173	874	927	103,890	1,197	66,149	27,390	2,617	28,467	-384	1,090	304,390	1,525	3,885	4,143
April	72,113	833	1,006	98,876	1,132	62,732	25,878	2,880	26,787	-452	1,109	292,894	1,703	4,309	4,583
May	81,695	984	974	110,430	1,053	66,576	25,486	3,425	25,286	-321	1,195	316,784	1,879	4,916	5,304
June	116,034	972	1,005	131,395	1,043	67,175	23,237	3,473	22,763	-497	1,180	367,781	1,928	4,990	5,401
July	136,316	1,273	1,049	151,554	1,077	70,349	21,455	3,945	24,428	-784	1,225	411,887	2,000	5,474	5,945
August	135,635	1,258	1,078	154,760	1,064	71,526	19,570	3,969	20,496	-902	1,248	409,701	1,942	5,543	5,911
September	114,138	946	980	125,603	1,020	65,448	16,368	3,635	22,894	-715	1,168	351,484	1,735	5,007	5,370
October	99,194	937	635	102,898	913	60,733	17,339	3,191	26,558	-561	1,108	312,945	1,552	4,495	4,743
November	86,940	1,070	799	93,942	1,013	65,179	18,808	2,767	26,052	-607	1,098	297,062	1,257	3,840	4,024
December	118,747	1,166	869	96,364	1,037	71,662	22,528	2,424	30,159	-753	1,139	345,343	1,167	3,500	3,591
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
February	86,822	869	723	82,768	978	63,560	23,882	2,751	28,213	-508	992	291,050	1,384	4,000	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
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
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
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
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
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
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
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
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
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	4,507
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
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
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
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
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
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
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
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
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
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
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
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

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), 2008 - 2018
(Thousand Megawatthours)

		Generation at Utility Scale Facilities									Small Scale Generation	Generation From Utility and Small Scale Facilities	
Period	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													
2008	55,363	76	788	37,300	7,156	8,097	2,481	14,840	254,831	380,932	N/A	N/A	N/A
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
Year 2016													
January	18,466	1,400	86	3,600	915	603	277	1,332	25,615	52,294	980	2,380	2,465
February	20,138	2,000	241	3,406	886	537	285	1,243	24,139	52,877	1,145	3,145	3,386
March	21,939	2,360	257	3,403	949	579	281	1,315	27,390	58,474	1,525	3,885	4,143
April	20,799	2,606	273	2,967	932	593	287	1,209	25,878	55,544	1,703	4,309	4,583
May	18,848	3,037	388	3,187	980	649	280	1,342	25,486	54,197	1,879	4,916	5,304
June	16,303	3,062	412	3,414	934	614	247	1,251	23,237	49,473	1,928	4,990	5,401
July	17,618	3,473	471	3,658	943	635	262	1,311	21,455	49,828	2,000	5,474	5,945
August	13,589	3,602	368	3,722	942	634	285	1,324	19,570	44,035	1,942	5,543	5,911
September	16,404	3,272	363	3,407	895	589	272	1,327	16,368	42,897	1,735	5,007	5,370
October	20,335	2,942	249	3,176	839	589	265	1,353	17,339	47,088	1,552	4,495	4,743
November	19,406	2,583	184	3,391	993	602	296	1,364	18,808	47,627	1,257	3,840	4,024
December	23,146	2,333	91	3,615	1,011	640	293	1,454	22,528	55,111	1,167	3,500	3,591
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

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, 2008 - 2018
(Thousand Megawatthours)

	Generation at Utility Scale Facilities												
										Renewable Sources Excluding Hydroelectric and Solar	Hydroelectric Pumped Storage		
Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Nuclear	Hydroelectric Conventional	Solar				Other	Total
Annual Totals													
2008	1,466,395	22,206	5,918	320,190	46	424,256	229,645	17	11,291		-5,143	545	2,475,367
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
Year 2016													
January	84,012	965	832	52,818	3	37,974	23,579	95	3,303		-230	34	203,384
February	69,852	830	734	48,009	4	34,281	22,015	135	3,624		-332	30	179,182
March	56,982	623	724	49,949	5	34,445	25,125	151	3,696		-291	42	171,452
April	53,542	602	858	46,425	7	34,036	23,742	169	3,887		-367	34	162,936
May	62,093	695	763	52,908	10	36,531	23,508	187	3,098		-257	33	179,569
June	86,611	710	793	63,858	16	37,000	21,716	188	3,034		-409	40	213,557
July	100,856	926	833	71,913	21	37,919	20,030	197	2,837		-678	34	234,890
August	100,156	905	856	72,293	13	37,927	18,241	207	2,432		-787	33	232,277
September	83,223	644	807	58,392	23	33,919	15,283	190	3,215		-626	35	195,105
October	72,950	658	418	47,710	7	30,016	16,149	182	3,479		-471	36	171,134
November	64,830	700	596	44,171	22	33,082	17,599	154	3,635		-522	35	164,301
December	87,293	811	667	46,333	22	37,268	20,799	139	4,425		-657	36	197,136
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	56,361	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

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.

Table 3.2.B. Net Generation from Renewable Sources: Electric Utilities, 2008 - 2018
(Thousand Megawatthours)

		Generation at Utility Scale Facilities									Small Scale Generation	Generation From Utility and Small Scale Facilities	
Period	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													
2008	6,899	16	1	1,888	844	211	252	1,197	229,645	240,953	N/A	N/A	N/A
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
Year 2016													
January	2,787	93	2	300	85	15	20	97	23,579	26,978	0	93	95
February	3,138	130	6	275	89	12	21	89	22,015	25,774	0	130	135
March	3,242	145	6	238	94	19	11	93	25,125	28,972	0	145	151
April	3,525	158	11	178	90	18	13	64	23,742	27,798	0	158	169
May	2,676	173	14	192	92	20	24	94	23,508	26,794	0	173	187
June	2,556	179	10	272	82	17	19	89	21,716	24,938	0	179	188
July	2,318	191	5	310	84	16	19	89	20,030	23,064	0	191	197
August	1,906	201	7	311	85	16	22	92	18,241	20,880	0	201	207
September	2,737	185	5	264	85	17	21	91	15,283	18,688	0	185	190
October	3,077	179	3	187	82	17	20	95	16,149	19,810	0	179	182
November	3,215	149	4	203	83	17	25	93	17,599	21,388	0	149	154
December	3,894	137	3	309	89	16	22	95	20,799	25,364	0	137	139
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

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, 2008 - 2018
(Thousand Megawatthours)

	Generation at Utility Scale Facilities											
									Renewable Sources Excluding Hydroelectric and Solar	Hydroelectric Pumped Storage		
Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Nuclear	Hydroelectric Conventional	Solar			Other	Total
Annual Totals												
2008	502,442	8,021	6,737	482,182	3,154	381,952	23,451	847	84,928	-1,145	6,414	1,498,982
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
Year 2016												
January	28,612	379	42	48,969	341	34,551	1,884	1,363	19,168	-82	589	135,816
February	22,057	416	99	42,840	295	31,357	1,991	2,065	20,345	-66	540	121,939
March	14,363	210	138	45,900	355	31,704	2,100	2,420	22,164	-93	549	119,810
April	17,877	188	97	44,832	311	28,696	1,993	2,662	20,487	-84	554	117,612
May	18,842	233	124	49,574	303	30,046	1,847	3,188	19,608	-64	610	124,310
June	28,585	214	131	59,185	335	30,175	1,410	3,229	17,117	-88	595	140,888
July	34,564	291	136	70,645	324	32,430	1,306	3,690	18,856	-106	610	162,745
August	34,607	309	140	73,317	319	33,599	1,217	3,701	15,341	-115	617	163,051
September	30,124	258	113	58,805	323	31,529	996	3,394	17,145	-89	557	143,155
October	25,524	232	141	47,044	228	30,717	1,080	2,965	20,549	-90	549	128,939
November	21,446	325	116	41,736	330	32,097	1,122	2,576	19,760	-85	560	119,981
December	30,661	307	124	41,755	296	34,394	1,591	2,250	23,013	-96	613	134,908
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	2,523	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	268	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

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, 2008 - 2018
(Thousand Megawatthours)

		Generation at Utility Scale Facilities										Small Scale Generation	Generation From Utility and Small Scale Facilities	
Period		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														
	2008	48,464	60	787	8,750	6,057	6,975	1,040	13,643	23,451	109,226	N/A	N/A	N/A
	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
Year 2016														
	January	15,660	1,279	84	903	748	497	125	1,235	1,884	22,416	0	1,279	1,363
	February	16,980	1,830	236	908	722	448	132	1,155	1,991	24,402	0	1,830	2,065
	March	18,678	2,168	252	897	777	468	122	1,222	2,100	26,684	0	2,168	2,420
	April	17,256	2,400	262	706	774	474	132	1,145	1,993	25,142	0	2,400	2,662
	May	16,156	2,813	374	755	808	530	111	1,248	1,847	24,643	0	2,813	3,188
	June	13,734	2,827	402	823	772	513	113	1,162	1,410	21,756	0	2,827	3,229
	July	15,287	3,224	466	932	782	520	113	1,222	1,306	23,852	0	3,224	3,690
	August	11,673	3,340	361	1,003	778	520	135	1,232	1,217	20,259	0	3,340	3,701
	September	13,654	3,036	358	903	737	482	133	1,236	996	21,535	0	3,036	3,394
	October	17,241	2,719	246	764	688	479	120	1,258	1,080	24,594	0	2,719	2,965
	November	16,173	2,396	180	864	828	497	126	1,271	1,122	23,458	0	2,396	2,576
	December	19,228	2,162	88	924	841	538	122	1,359	1,591	26,854	0	2,162	2,250
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

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 3.4.A. Net Generation by Energy Source: Commercial Sector, 2008 - 2018
(Thousand Megawatthours)

Period	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	Total Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals															
2008	1,261	136	6	4,188	0	0	60	0	1,555	0	720	7,926	N/A	N/A	N/A
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
Year 2016															
January	43	8	1	605	0	0	21	26	230	0	89	1,022	346	373	373
February	45	8	1	570	0	0	18	39	210	0	75	967	398	437	437
March	46	3	1	579	0	0	22	44	225	0	90	1,011	520	564	564
April	24	6	0	551	0	0	15	46	221	0	97	961	566	612	612
May	20	6	0	607	0	0	12	48	230	0	96	1,019	616	663	663
June	23	5	0	692	0	0	13	53	220	0	83	1,089	623	676	676
July	24	8	1	831	0	0	15	55	234	0	96	1,263	640	696	696
August	26	7	0	859	0	0	19	58	234	0	95	1,298	620	677	677
September	29	4	0	700	0	0	23	48	223	0	87	1,114	556	605	605
October	27	5	0	617	0	0	21	42	218	0	90	1,021	493	536	536
November	35	8	0	521	0	0	17	36	224	0	85	927	393	428	428
December	42	8	1	598	0	0	21	33	228	0	85	1,015	387	420	420
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

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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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, 2008 - 2018
(Thousand Megawatthours)

		Generation at Utility Scale Facilities									Small Scale Generation	Generation From Utility and Small Scale Facilities	
Period	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													
2008	0	0	0	21	234	911	389	0	60	1,615	N/A	N/A	N/A
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
Year 2016													
January	11	26	0	6	66	91	55	0	21	277	346	373	373
February	12	39	0	6	61	77	54	0	18	267	398	437	437
March	13	44	0	3	64	92	54	0	22	292	520	564	564
April	12	46	0	4	53	100	51	0	15	282	566	612	612
May	11	48	0	1	63	98	56	0	12	289	616	663	663
June	9	53	0	9	65	84	53	0	13	286	623	676	676
July	10	55	0	8	63	98	55	0	15	304	640	696	696
August	8	58	0	11	64	97	55	0	19	311	620	677	677
September	9	48	0	8	62	89	55	0	23	295	556	605	605
October	12	42	0	4	57	93	52	0	21	282	493	536	536
November	11	36	0	2	68	88	54	0	17	277	393	428	428
December	14	33	0	6	67	87	54	0	21	282	387	420	420
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

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.

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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, 2008 - 2018
(Thousand Megawatthours)

Period	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	Total Generation at Utility Scale Facilities	Estimated Solar Photovoltaic	Estimated Total Solar Photovoltaic	Estimated Total Solar
Annual Totals															
2008	15,703	1,555	1,664	76,421	8,507	0	1,676	0	27,462	0	4,125	137,113	N/A	N/A	N/A
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
Year 2016															
January	793	45	91	7,653	851	0	130	1	2,492	0	442	12,497	113	115	115
February	750	45	76	7,133	763	0	115	2	2,317	0	396	11,597	124	126	126
March	781	39	63	7,462	837	0	142	2	2,381	0	409	12,117	171	173	173
April	670	37	50	7,067	815	0	128	2	2,192	0	424	11,386	186	189	189
May	740	51	87	7,341	740	0	119	3	2,350	0	456	11,886	206	208	208
June	814	44	81	7,661	692	0	99	3	2,391	0	463	12,248	206	209	209
July	873	48	79	8,165	731	0	104	3	2,501	0	486	12,989	214	217	217
August	847	37	81	8,291	732	0	92	3	2,489	0	503	13,075	209	212	212
September	762	41	60	7,706	674	0	65	2	2,312	0	489	12,111	190	192	192
October	693	41	75	7,527	679	0	88	2	2,312	0	433	11,851	174	176	176
November	630	37	87	7,514	662	0	69	2	2,433	0	418	11,852	139	140	140
December	750	40	78	7,678	720	0	117	1	2,493	0	405	12,283	128	129	129
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

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, 2008 - 2018
(Thousand Megawatthours)

		Generation at Utility Scale Facilities										Small Scale Generation	Generation From Utility and Small Scale Facilities	
Period		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														
	2008	0	0	0	26,641	21	0	800	0	1,676	29,138	N/A	N/A	N/A
	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	1,668	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
Year 2016														
	January	8	1	0	2,392	16	0	77	0	130	2,623	113	115	115
	February	7	2	0	2,217	14	0	78	0	115	2,434	124	126	126
	March	7	2	0	2,266	15	0	93	0	142	2,525	171	173	173
	April	6	2	0	2,079	15	0	91	0	128	2,323	186	189	189
	May	5	3	0	2,238	16	1	90	0	119	2,472	206	208	208
	June	5	3	0	2,310	14	1	62	0	99	2,493	206	209	209
	July	3	3	0	2,408	14	1	75	0	104	2,608	214	217	217
	August	3	3	0	2,398	14	1	73	0	92	2,585	209	212	212
	September	4	2	0	2,231	12	1	63	0	65	2,379	190	192	192
	October	6	2	0	2,220	12	1	73	0	88	2,402	174	176	176
	November	7	2	0	2,323	14	0	90	0	69	2,505	139	140	140
	December	9	1	0	2,375	14	-1	95	0	117	2,611	128	129	129
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

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 3.6. Net Generation by Energy Source: Residential Sector, 2014 - 2018
(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
Year 2016	
January	520
February	622
March	835
April	951
May	1,058
June	1,099
July	1,146
August	1,113
September	989
October	884
November	726
December	653
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

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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	105,548	105,234	0.3%	2,968	2,550	98,313	98,469	1,371	1,316	2,897	2,899
Connecticut	39,454	34,563	14.2%	109	98	38,267	33,426	433	423	644	616
Maine	11,281	11,264	0.1%	0	0	9,308	9,207	165	215	1,807	1,843
Massachusetts	27,173	32,204	-15.6%	587	546	25,676	30,843	642	548	269	268
New Hampshire	17,087	17,447	-2.1%	1,417	975	15,571	16,373	69	70	31	30
Rhode Island	8,375	7,615	10.0%	0	3	8,170	7,410	59	58	146	143
Vermont	2,179	2,141	1.8%	856	929	1,320	1,210	3	3	0	0
Middle Atlantic	422,940	417,349	1.3%	35,936	34,874	380,377	375,657	2,286	2,376	4,340	4,442
New Jersey	75,034	75,645	-0.8%	125	130	73,602	74,102	602	674	704	740
New York	132,521	128,065	3.5%	35,660	34,642	94,641	91,247	1,312	1,310	908	867
Pennsylvania	215,386	213,639	0.8%	151	103	212,134	210,309	373	392	2,728	2,836
East North Central	609,422	579,497	5.2%	240,648	237,157	356,005	330,431	1,924	1,916	10,845	9,993
Illinois	188,003	183,592	2.4%	5,450	5,066	179,341	175,353	405	433	2,807	2,739
Indiana	113,460	98,930	14.7%	84,830	77,340	24,138	17,669	250	265	4,242	3,656
Michigan	115,837	112,314	3.1%	81,450	79,939	32,195	30,223	867	831	1,324	1,320
Ohio	126,185	119,554	5.5%	17,624	23,431	107,628	95,225	256	263	676	636
Wisconsin	65,937	65,107	1.3%	51,294	51,380	12,702	11,961	145	124	1,796	1,641
West North Central	353,902	340,046	4.1%	290,130	277,404	59,134	57,930	631	602	4,006	4,110
Iowa	63,381	57,910	9.4%	49,513	43,189	11,531	12,507	227	210	2,110	2,003
Kansas	51,710	50,933	1.5%	34,518	33,850	17,091	17,025	16	15	86	43
Minnesota	61,517	58,749	4.7%	48,577	45,690	11,416	11,378	193	184	1,331	1,497
Missouri	85,095	84,607	0.6%	79,780	81,061	5,098	3,325	175	175	43	46
Nebraska	36,966	35,407	4.4%	31,167	30,095	5,407	4,933	18	19	374	360
North Dakota	42,615	41,505	2.7%	35,946	34,637	6,604	6,708	NM	0	62	160
South Dakota	12,616	10,936	15.4%	10,628	8,883	1,988	2,052	0	0	0	0
South Atlantic	819,993	792,859	3.4%	674,016	659,053	125,574	113,479	1,728	1,491	18,675	18,836
Delaware	6,241	7,496	-16.7%	37	24	5,124	6,304	6	6	1,073	1,161
District of Columbia	79	67	18.6%	0	0	0	0	79	67	0	0
Florida	244,252	238,413	2.4%	227,284	222,272	11,808	10,881	80	72	5,079	5,188
Georgia	129,239	127,455	1.4%	109,171	107,179	14,824	15,208	7	6	5,238	5,063
Maryland	43,810	34,104	28.5%	3,797	256	38,930	33,022	840	543	244	283
North Carolina	134,249	128,468	4.5%	117,492	114,362	14,636	11,863	332	357	1,790	1,886
South Carolina	99,364	93,081	6.8%	94,058	88,079	3,602	3,228	3	2	1,702	1,772
Virginia	95,509	90,417	5.6%	72,379	70,951	20,264	16,620	382	439	2,484	2,407
West Virginia	67,249	73,357	-8.3%	49,799	55,929	16,385	16,351	0	0	1,065	1,077
East South Central	368,891	351,917	4.8%	312,387	301,872	47,022	40,792	229	201	9,253	9,052
Alabama	145,058	139,964	3.6%	102,665	101,709	37,771	33,817	0	0	4,622	4,437
Kentucky	78,804	73,179	7.7%	77,557	72,106	715	454	0	0	533	619
Mississippi	63,474	59,728	6.3%	53,311	51,510	8,248	6,291	0	5	1,915	1,921
Tennessee	81,555	79,046	3.2%	78,854	76,547	289	229	229	195	2,183	2,075
West South Central	733,704	685,020	7.1%	256,469	228,403	398,531	380,432	957	907	77,747	75,279
Arkansas	67,999	60,775	11.9%	59,485	54,209	6,829	4,862	44	43	1,642	1,660
Louisiana	102,128	97,719	4.5%	62,152	56,686	9,167	10,084	170	137	30,639	30,812
Oklahoma	86,224	73,732	16.9%	41,868	36,425	43,469	36,484	0	0	887	823
Texas	477,352	452,794	5.4%	92,965	81,082	339,066	329,001	743	727	44,579	41,985
Mountain	371,498	361,265	2.8%	289,926	282,251	77,889	75,245	576	576	3,107	3,193
Arizona	111,925	105,852	5.7%	98,448	91,623	13,323	14,062	154	166	0	0
Colorado	55,386	53,844	2.9%	42,037	41,471	13,248	12,268	27	31	76	74
Idaho	18,172	17,396	4.5%	11,904	11,447	5,695	5,367	50	52	523	530
Montana	28,213	28,221	0.0%	12,087	11,545	16,090	16,645	0	0	36	31
Nevada	39,640	38,201	3.8%	27,482	26,836	11,667	10,945	159	127	332	294
New Mexico	32,674	33,597	-2.7%	21,112	24,595	11,431	8,884	107	117	24	1
Utah	39,375	37,412	5.2%	34,901	32,614	3,803	3,872	79	84	592	843
Wyoming	46,112	46,742	-1.3%	41,955	42,120	2,633	3,202	0	0	1,525	1,420
Pacific Contiguous	376,336	384,772	-2.2%	223,897	239,669	134,016	126,583	2,885	2,966	15,538	15,554
California	195,466	206,147	-5.2%	75,239	90,422	103,882	99,342	2,779	2,867	13,566	13,515
Oregon	64,114	62,714	2.2%	47,020	48,765	16,410	13,266	74	72	609	611
Washington	116,757	115,912	0.7%	101,638	100,482	13,724	13,975	32	27	1,363	1,428
Pacific Noncontiguous	16,044	16,310	-1.6%	10,871	11,045	4,057	4,156	726	708	391	400
Alaska	6,247	6,497	-3.8%	5,575	5,823	234	231	328	335	110	108
Hawaii	9,797	9,813	-0.2%	5,296	5,223	3,822	3,925	398	373	281	292
U.S. Total	4,178,277	4,034,271	3.6%	2,337,250	2,274,279	1,680,917	1,603,174	13,312	13,060	146,798	143,758

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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	1,061	1,689	-37.2%	660	287	386	1,392	0	0	15	10
Connecticut	330	198	66.9%	0	0	330	198	0	0	0	0
Maine	71	68	4.3%	0	0	56	58	0	0	15	10
Massachusetts	0	1,136	-100.0%	0	0	0	1,136	0	0	0	0
New Hampshire	660	287	129.8%	660	287	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	45,970	49,621	-7.4%	0	0	45,843	49,235	0	0	127	385
New Jersey	1,193	1,216	-1.9%	0	0	1,193	1,216	0	0	0	0
New York	690	770	-10.4%	0	0	679	562	0	0	11	209
Pennsylvania	44,086	47,634	-7.4%	0	0	43,970	47,458	0	0	116	177
East North Central	271,477	276,582	-1.8%	161,313	167,556	107,879	106,945	69	63	2,217	2,017
Illinois	59,642	57,980	2.9%	4,052	4,002	53,810	52,403	31	29	1,748	1,546
Indiana	77,455	72,385	7.0%	73,105	69,731	4,312	2,620	38	34	0	0
Michigan	42,331	42,021	0.7%	41,830	41,531	427	444	0	0	73	46
Ohio	58,727	68,344	-14.1%	9,391	16,856	49,330	51,478	0	0	6	9
Wisconsin	33,322	35,852	-7.1%	32,933	35,437	0	0	0	0	389	416
West North Central	189,023	185,041	2.2%	186,667	182,466	0	1	85	106	2,270	2,469
Iowa	28,553	25,358	12.6%	26,969	23,787	0	0	74	83	1,509	1,489
Kansas	20,474	19,390	5.6%	20,474	19,390	0	0	0	0	0	0
Minnesota	23,455	22,782	3.0%	23,068	22,270	0	0	1	1	387	511
Missouri	63,355	67,519	-6.2%	63,345	67,496	0	1	10	22	0	0
Nebraska	23,305	21,174	10.1%	22,931	20,813	0	0	0	0	374	360
North Dakota	27,541	26,756	2.9%	27,541	26,648	0	0	0	0	0	108
South Dakota	2,339	2,062	13.4%	2,339	2,062	0	0	0	0	0	0
South Atlantic	195,286	210,560	-7.3%	170,331	186,731	24,215	23,001	45	56	695	772
Delaware	273	359	-23.8%	0	0	273	359	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	30,272	37,513	-19.3%	30,175	37,265	0	109	0	0	98	139
Georgia	32,181	32,487	-0.9%	31,983	32,311	0	0	0	0	198	176
Maryland	10,067	8,514	18.2%	0	0	10,007	8,440	0	0	60	74
North Carolina	31,690	34,460	-8.0%	31,412	34,136	98	113	39	45	142	167
South Carolina	19,497	18,152	7.4%	19,481	18,127	0	0	0	0	16	25
Virginia	9,266	10,726	-13.6%	8,453	9,999	625	524	6	11	182	192
West Virginia	62,039	68,349	-9.2%	48,827	54,893	13,211	13,456	0	0	0	0
East South Central	117,192	121,020	-3.2%	113,670	118,076	2,831	2,231	0	0	691	713
Alabama	31,778	31,440	1.1%	31,734	31,411	0	0	0	0	44	29
Kentucky	59,168	57,237	3.4%	59,168	57,237	0	0	0	0	0	0
Mississippi	5,280	4,628	14.1%	2,449	2,397	2,831	2,231	0	0	0	0
Tennessee	20,967	27,715	-24.3%	20,320	27,031	0	0	0	0	647	684
West South Central	168,412	190,618	-11.6%	92,704	91,640	75,458	98,644	0	0	250	334
Arkansas	29,996	26,285	14.1%	24,754	22,743	5,197	3,497	0	0	46	45
Louisiana	11,787	12,316	-4.3%	7,780	7,240	4,007	5,075	0	0	0	0
Oklahoma	14,907	17,368	-14.2%	12,868	15,329	1,834	1,750	0	0	205	289
Texas	111,723	134,648	-17.0%	47,302	46,328	64,420	88,321	0	0	0	0
Mountain	151,985	161,264	-5.8%	136,335	144,883	15,208	15,731	0	0	442	650
Arizona	30,745	31,396	-2.1%	30,745	31,396	0	0	0	0	0	0
Colorado	26,382	29,242	-9.8%	26,370	29,233	0	0	0	0	12	9
Idaho	20	24	-14.7%	0	0	0	0	0	0	20	24
Montana	13,360	13,864	-3.6%	234	225	13,116	13,633	0	0	10	6
Nevada	2,485	1,866	33.2%	1,443	902	1,042	964	0	0	0	0
New Mexico	13,402	18,414	-27.2%	13,402	18,414	0	0	0	0	0	0
Utah	25,912	26,390	-1.8%	25,501	25,759	412	413	0	0	0	217
Wyoming	39,679	40,069	-1.0%	38,642	38,954	638	721	0	0	400	394
Pacific Contiguous	7,141	7,509	-4.9%	1,476	1,728	5,359	5,463	0	0	305	318
California	281	291	-3.4%	0	0	0	0	0	0	281	291
Oregon	1,476	1,728	-14.6%	1,476	1,728	0	0	0	0	0	0
Washington	5,383	5,490	-1.9%	0	0	5,359	5,463	0	0	24	27
Pacific Noncontiguous	1,940	1,931	0.4%	347	271	1,489	1,557	103	104	0	0
Alaska	629	556	13.1%	347	271	178	181	103	104	0	0
Hawaii	1,311	1,376	-4.7%	0	0	1,311	1,376	0	0	0	0
U.S. Total	1,149,487	1,205,835	-4.7%	863,505	893,639	278,668	304,198	303	329	7,011	7,669

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 3.9. Utility Scale Facility Net Generation from Petroleum Liquids
by State, by Sector, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	1,246	747	66.8%	184	84	1,006	609	36	39	20	15
Connecticut	339	178	90.0%	5	5	329	169	3	4	1	1
Maine	189	132	42.8%	0	0	171	117	2	2	17	13
Massachusetts	461	266	73.5%	75	44	371	204	13	16	2	1
New Hampshire	178	105	69.8%	101	25	61	66	16	14	0	0
Rhode Island	76	58	29.6%	0	3	74	53	2	3	0	0
Vermont	3	7	-56.1%	3	7	0	0	0	0	0	0
Middle Atlantic	2,452	934	162.4%	621	239	1,767	638	23	16	41	41
New Jersey	302	80	275.6%	3	0	293	80	5	0	1	0
New York	1,591	598	166.1%	616	239	926	309	13	12	35	38
Pennsylvania	559	256	118.5%	2	0	548	249	4	4	5	3
East North Central	556	525	5.9%	299	319	226	180	6	4	25	22
Illinois	53	51	3.8%	8	8	45	43	0	0	0	0
Indiana	131	125	4.2%	110	107	0	1	1	0	19	17
Michigan	117	110	7.2%	112	105	0	0	4	3	2	2
Ohio	219	206	6.2%	34	67	180	136	1	0	3	2
Wisconsin	36	33	8.9%	35	32	1	0	0	0	1	1
West North Central	323	299	8.0%	300	289	19	7	2	1	1	1
Iowa	67	104	-35.5%	63	103	4	0	0	0	0	0
Kansas	52	55	-4.6%	52	55	0	0	0	0	0	0
Minnesota	47	35	32.5%	28	26	16	7	2	1	1	1
Missouri	100	61	64.3%	100	61	0	0	0	0	0	0
Nebraska	12	6	121.1%	12	6	0	0	0	0	0	0
North Dakota	38	36	7.3%	38	36	0	0	0	0	0	0
South Dakota	6	3	111.0%	6	3	0	0	0	0	0	0
South Atlantic	3,398	1,707	99.1%	2,386	1,309	819	261	55	34	138	103
Delaware	201	25	690.2%	6	2	195	23	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	572	512	11.7%	537	489	12	6	0	0	23	17
Georgia	279	142	96.1%	105	74	92	4	5	2	77	62
Maryland	260	102	154.5%	3	2	253	97	1	1	3	2
North Carolina	633	251	151.8%	570	227	41	12	2	1	19	11
South Carolina	344	98	252.2%	327	88	5	1	0	0	11	8
Virginia	950	456	108.4%	692	309	207	115	47	28	4	3
West Virginia	159	120	32.6%	145	119	14	1	0	0	0	0
East South Central	293	241	21.3%	250	227	30	4	0	0	13	11
Alabama	66	36	84.0%	29	25	29	3	0	0	7	7
Kentucky	70	71	-0.6%	70	71	0	0	0	0	0	0
Mississippi	27	11	138.3%	23	9	0	0	0	0	4	2
Tennessee	130	124	4.8%	127	122	0	0	0	0	2	2
West South Central	136	158	-14.0%	104	97	24	56	1	1	8	5
Arkansas	36	49	-27.5%	27	23	6	24	0	0	3	2
Louisiana	21	19	13.1%	21	19	0	0	0	0	0	0
Oklahoma	18	16	12.0%	17	15	0	0	0	0	1	1
Texas	61	74	-17.5%	39	39	18	33	1	1	4	2
Mountain	186	209	-11.1%	165	191	21	18	0	0	0	0
Arizona	50	57	-12.0%	50	57	0	0	0	0	0	0
Colorado	12	7	63.9%	11	7	0	0	0	0	0	0
Idaho	0	0	-66.3%	0	0	0	0	0	0	0	0
Montana	17	13	24.4%	0	0	16	13	0	0	0	0
Nevada	10	9	17.1%	7	5	3	4	0	0	0	0
New Mexico	21	41	-49.2%	21	41	0	0	0	0	0	0
Utah	37	38	-4.8%	35	37	1	1	0	0	0	0
Wyoming	40	44	-8.5%	40	44	0	0	0	0	0	0
Pacific Contiguous	97	79	22.8%	43	47	16	14	1	1	38	17
California	69	46	50.4%	34	35	5	3	1	1	29	8
Oregon	5	10	-53.3%	5	10	0	0	0	0	0	0
Washington	24	23	2.3%	4	3	10	11	0	0	9	9
Pacific Noncontiguous	7,558	7,514	0.6%	5,756	5,766	1,560	1,493	9	7	233	248
Alaska	809	881	-8.1%	761	832	0	0	6	5	43	44
Hawaii	6,749	6,634	1.7%	4,995	4,934	1,560	1,493	3	2	191	204
U.S. Total	16,245	12,414	30.9%	10,108	8,567	5,487	3,281	132	103	517	463

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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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
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	127	175	-27.8%	0	0	0	0	0	0	127	175
New Jersey	60	76	-20.6%	0	0	0	0	0	0	60	76
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	66	99	-33.2%	0	0	0	0	0	0	66	99
East North Central	2,295	2,153	6.6%	1,085	967	1,087	1,035	0	0	123	151
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	1,096	1,007	8.9%	984	856	0	0	0	0	112	151
Ohio	1,097	1,035	6.0%	0	0	1,087	1,035	0	0	10	0
Wisconsin	101	111	-8.8%	101	111	0	0	0	0	0	0
West North Central	44	43	1.7%	0	0	0	0	7	8	36	34
Iowa	44	43	1.7%	0	0	0	0	7	8	36	34
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	1,662	1,091	52.3%	1,506	951	0	0	0	0	156	140
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	1,506	951	58.3%	1,506	951	0	0	0	0	0	0
Georgia	156	140	11.4%	0	0	0	0	0	0	156	140
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	427	-100.1%	0	427	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	427	-100.1%	0	427	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	4,425	4,640	-4.7%	4,227	4,366	0	0	0	0	198	274
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	4,356	4,551	-4.3%	4,227	4,366	0	0	0	0	130	185
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	68	90	-23.9%	0	0	0	0	0	0	68	90
Mountain	429	445	-3.6%	0	0	429	445	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	429	445	-3.6%	0	0	429	445	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	8,981	8,976	0.1%	6,817	6,711	1,516	1,480	7	8	640	776

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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 3.11. Utility Scale Facility Net Generation from Natural Gas
by State, by Sector, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	51,613	51,121	1.0%	258	270	48,764	48,532	1,087	980	1,504	1,338
Connecticut	20,006	15,961	25.3%	59	64	18,875	14,863	429	419	643	615
Maine	2,331	2,237	4.2%	0	0	1,878	1,915	30	30	422	292
Massachusetts	18,386	22,153	-17.0%	167	173	17,387	21,249	570	472	262	258
New Hampshire	2,992	3,580	-16.4%	31	32	2,922	3,508	8	10	31	30
Rhode Island	7,897	7,188	9.9%	0	0	7,702	6,996	49	49	146	143
Vermont	2	2	-0.6%	1	1	0	0	1	1	0	0
Middle Atlantic	166,065	157,483	5.4%	10,538	10,133	151,816	143,901	1,182	1,211	2,529	2,239
New Jersey	38,863	37,708	3.1%	161	211	38,119	36,903	181	225	401	369
New York	50,810	47,272	7.5%	10,370	9,915	38,948	36,150	870	847	623	360
Pennsylvania	76,391	72,503	5.4%	7	7	74,749	70,848	130	139	1,505	1,510
East North Central	136,058	101,578	33.9%	45,498	34,297	85,671	62,735	1,462	1,466	3,427	3,080
Illinois	17,241	15,016	14.8%	1,224	970	15,040	12,915	364	397	613	735
Indiana	26,817	17,976	49.2%	10,965	6,789	14,156	9,716	168	190	1,528	1,281
Michigan	30,987	26,131	18.6%	10,493	8,251	19,459	16,889	612	564	423	428
Ohio	44,215	28,800	53.5%	7,956	6,209	35,809	22,185	243	247	207	158
Wisconsin	16,799	13,656	23.0%	14,861	12,079	1,207	1,031	75	67	656	478
West North Central	29,103	20,587	41.4%	24,754	17,340	3,245	2,314	321	279	783	654
Iowa	7,340	4,567	60.7%	6,705	4,041	7	4	98	86	529	437
Kansas	3,006	2,147	40.0%	2,922	2,105	0	0	0	0	84	41
Minnesota	8,555	6,708	27.5%	7,221	5,370	1,107	1,116	108	97	120	126
Missouri	7,050	5,205	35.4%	4,767	3,874	2,131	1,194	112	94	40	43
Nebraska	965	629	53.3%	961	628	0	0	3	1	0	0
North Dakota	1,019	676	50.8%	1,009	668	0	0	0	0	10	8
South Dakota	1,168	654	78.5%	1,168	654	0	0	0	0	0	0
South Atlantic	359,797	329,079	9.3%	293,723	269,973	60,703	54,016	970	673	4,402	4,417
Delaware	5,400	6,723	-19.7%	25	15	4,567	5,830	0	0	809	878
District of Columbia	23	20	15.6%	0	0	0	0	23	20	0	0
Florida	171,872	161,105	6.7%	162,843	153,028	7,450	6,606	30	24	1,550	1,446
Georgia	51,972	52,722	-1.4%	39,240	39,696	12,139	12,436	0	0	594	591
Maryland	13,850	6,729	105.8%	3,785	246	9,165	5,866	812	526	88	90
North Carolina	43,446	38,590	12.6%	36,506	33,442	6,713	4,956	90	92	136	100
South Carolina	21,654	17,156	26.2%	18,921	14,347	2,604	2,686	0	0	128	124
Virginia	50,160	44,507	12.7%	32,229	29,022	17,172	14,795	16	10	744	680
West Virginia	1,420	1,527	-7.0%	174	178	894	841	0	0	352	509
East South Central	136,296	119,790	13.8%	90,460	79,380	43,021	37,833	225	196	2,591	2,381
Alabama	58,800	52,984	11.0%	20,266	18,360	37,234	33,425	0	0	1,300	1,199
Kentucky	14,615	10,380	40.8%	13,717	9,709	695	432	0	0	204	239
Mississippi	49,482	46,158	7.2%	43,920	41,739	5,078	3,962	0	5	484	452
Tennessee	13,399	10,268	30.5%	12,557	9,572	14	14	225	191	603	492
West South Central	363,732	311,278	16.9%	121,869	96,723	173,564	148,519	861	822	67,437	65,215
Arkansas	20,624	17,314	19.1%	18,983	15,832	1,305	1,169	38	37	297	277
Louisiana	61,782	59,001	4.7%	32,970	29,649	3,902	4,015	170	137	24,740	25,201
Oklahoma	41,613	30,451	36.7%	25,682	17,762	15,560	12,437	0	0	371	252
Texas	239,713	204,512	17.2%	44,234	33,480	152,797	130,899	653	648	42,029	39,485
Mountain	105,259	88,026	19.6%	84,423	68,132	18,878	17,904	413	434	1,545	1,556
Arizona	37,168	29,591	25.6%	28,897	20,418	8,130	9,030	141	143	0	0
Colorado	16,398	12,532	30.9%	13,804	10,630	2,575	1,879	1	3	19	20
Idaho	3,279	3,079	6.5%	1,553	1,575	1,594	1,333	39	40	92	132
Montana	476	417	14.4%	342	303	131	109	0	0	4	4
Nevada	26,689	26,626	0.2%	24,148	24,118	2,149	2,156	62	60	330	291
New Mexico	11,628	9,132	27.3%	7,277	5,696	4,223	3,320	104	114	24	1
Utah	8,724	5,871	48.6%	8,170	5,233	75	77	65	73	414	488
Wyoming	896	779	15.0%	233	158	1	1	0	0	662	620
Pacific Contiguous	118,263	114,266	3.5%	45,800	44,415	59,955	57,166	1,898	1,979	10,609	10,705
California	89,805	88,350	1.6%	29,994	30,106	47,525	45,800	1,835	1,921	10,451	10,523
Oregon	17,923	15,066	19.0%	9,032	7,927	8,773	7,015	45	41	73	83
Washington	10,535	10,849	-2.9%	6,774	6,383	3,657	4,350	19	17	85	99
Pacific Noncontiguous	2,948	3,235	-8.9%	2,883	3,170	0	0	0	2	65	62
Alaska	2,948	3,235	-8.9%	2,883	3,170	0	0	0	2	65	62
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	1,469,133	1,296,442	13.3%	720,206	623,834	645,616	572,919	8,419	8,042	94,892	91,647

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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
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	741	666	11.3%	0	0	1	0	0	0	739	666
New Jersey	212	219	-3.4%	0	0	0	0	0	0	212	219
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	528	446	18.5%	0	0	1	0	0	0	527	446
East North Central	4,911	4,609	6.6%	151	149	2,077	2,126	0	0	2,683	2,334
Illinois	201	180	11.5%	0	0	1	0	0	0	200	180
Indiana	2,326	1,991	16.8%	0	0	0	0	0	0	2,326	1,991
Michigan	1,598	1,652	-3.3%	151	149	1,447	1,504	0	0	0	0
Ohio	787	786	0.1%	0	0	630	623	0	0	157	163
Wisconsin	0	0	--	0	0	0	0	0	0	0	0
West North Central	51	42	20.8%	0	0	0	0	0	0	51	42
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	51	42	20.8%	0	0	0	0	0	0	51	42
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	283	310	-8.8%	0	0	0	0	0	0	283	310
Delaware	252	271	-6.8%	0	0	0	0	0	0	252	271
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	5	5	11.9%	0	0	0	0	0	0	5	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	25	34	-27.9%	0	0	0	0	0	0	25	34
East South Central	16	20	-22.0%	0	0	0	0	0	0	16	20
Alabama	5	9	-45.6%	0	0	0	0	0	0	5	9
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	11	12	-4.1%	0	0	0	0	0	0	11	12
West South Central	5,124	4,615	11.0%	0	0	1,413	1,482	0	0	3,711	3,133
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	2,598	2,143	21.2%	0	0	0	0	0	0	2,598	2,143
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	2,526	2,472	2.2%	0	0	1,413	1,482	0	0	1,113	990
Mountain	397	390	1.6%	0	0	12	14	0	0	384	377
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	12	14	-9.6%	0	0	12	14	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	7	16	-60.0%	0	0	0	0	0	0	7	16
Wyoming	378	360	4.8%	0	0	0	0	0	0	378	360
Pacific Contiguous	1,885	1,764	6.8%	0	0	431	356	0	0	1,454	1,408
California	1,454	1,408	3.2%	0	0	0	0	0	0	1,454	1,408
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	431	356	21.0%	0	0	431	356	0	0	0	0
Pacific Noncontiguous	56	52	7.1%	0	0	0	0	0	0	56	52
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	56	52	7.1%	0	0	0	0	0	0	56	52
U.S. Total	13,463	12,469	8.0%	151	149	3,935	3,978	0	0	9,377	8,343

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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	31,385	31,537	-0.5%	0	0	31,385	31,537	0	0	0	0
Connecticut	16,881	16,500	2.3%	0	0	16,881	16,500	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	4,442	5,047	-12.0%	0	0	4,442	5,047	0	0	0	0
New Hampshire	10,062	9,991	0.7%	0	0	10,062	9,991	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	158,378	159,400	-0.6%	0	0	158,378	159,400	0	0	0	0
New Jersey	31,982	34,033	-6.0%	0	0	31,982	34,033	0	0	0	0
New York	42,919	42,167	1.8%	0	0	42,919	42,167	0	0	0	0
Pennsylvania	83,477	83,200	0.3%	0	0	83,477	83,200	0	0	0	0
East North Central	157,024	156,909	0.1%	25,023	26,284	132,002	130,625	0	0	0	0
Illinois	98,102	97,191	0.9%	0	0	98,102	97,191	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	30,479	32,381	-5.9%	25,023	26,284	5,456	6,097	0	0	0	0
Ohio	18,315	17,688	3.5%	0	0	18,315	17,688	0	0	0	0
Wisconsin	10,129	9,649	5.0%	0	0	10,129	9,649	0	0	0	0
West North Central	44,952	44,983	-0.1%	40,057	39,769	4,895	5,214	0	0	0	0
Iowa	4,895	5,214	-6.1%	0	0	4,895	5,214	0	0	0	0
Kansas	9,168	10,648	-13.9%	9,168	10,648	0	0	0	0	0	0
Minnesota	14,601	13,904	5.0%	14,601	13,904	0	0	0	0	0	0
Missouri	10,655	8,304	28.3%	10,655	8,304	0	0	0	0	0	0
Nebraska	5,632	6,913	-18.5%	5,632	6,913	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	202,708	205,235	-1.2%	187,720	190,128	14,988	15,107	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	29,312	29,146	0.6%	29,312	29,146	0	0	0	0	0	0
Georgia	34,363	33,709	1.9%	34,363	33,709	0	0	0	0	0	0
Maryland	14,988	15,107	-0.8%	0	0	14,988	15,107	0	0	0	0
North Carolina	42,077	42,374	-0.7%	42,077	42,374	0	0	0	0	0	0
South Carolina	52,716	54,345	-3.0%	52,716	54,345	0	0	0	0	0	0
Virginia	29,252	30,554	-4.3%	29,252	30,554	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	82,559	81,834	0.9%	82,559	81,834	0	0	0	0	0	0
Alabama	39,463	42,652	-7.5%	39,463	42,652	0	0	0	0	0	0
Kentucky	0	0	--	0	0	0	0	0	0	0	0
Mississippi	6,919	7,365	-6.0%	6,919	7,365	0	0	0	0	0	0
Tennessee	36,176	31,818	13.7%	36,176	31,818	0	0	0	0	0	0
West South Central	71,059	66,682	6.6%	29,873	28,101	41,186	38,581	0	0	0	0
Arkansas	12,721	12,691	0.2%	12,721	12,691	0	0	0	0	0	0
Louisiana	17,153	15,410	11.3%	17,153	15,410	0	0	0	0	0	0
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	41,186	38,581	6.8%	0	0	41,186	38,581	0	0	0	0
Mountain	31,097	32,340	-3.8%	31,097	32,340	0	0	0	0	0	0
Arizona	31,097	32,340	-3.8%	31,097	32,340	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	27,922	26,029	7.3%	27,922	26,029	0	0	0	0	0	0
California	18,214	17,901	1.7%	18,214	17,901	0	0	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	9,708	8,128	19.4%	9,708	8,128	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	807,084	804,950	0.3%	424,251	424,485	382,833	380,465	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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	7,577	7,455	1.6%	1,078	1,051	6,380	6,030	4	4	114	370
Connecticut	555	332	67.2%	41	25	514	307	0	0	0	0
Maine	3,261	3,389	-3.8%	0	0	3,147	3,025	0	0	114	364
Massachusetts	1,134	1,037	9.3%	268	252	862	775	4	4	0	6
New Hampshire	1,355	1,413	-4.1%	371	340	984	1,073	0	0	0	0
Rhode Island	4	2	72.9%	0	0	4	2	0	0	0	0
Vermont	1,268	1,280	-1.0%	398	434	870	847	0	0	0	0
Middle Atlantic	33,927	33,282	1.9%	25,247	24,999	8,615	8,207	6	6	59	70
New Jersey	36	14	160.7%	0	0	36	14	0	0	0	0
New York	29,630	30,145	-1.7%	25,105	24,904	4,460	5,165	6	6	59	70
Pennsylvania	4,262	3,123	36.4%	142	95	4,120	3,028	0	0	0	0
East North Central	4,574	5,045	-9.3%	4,068	4,534	354	313	1	2	151	197
Illinois	147	125	17.1%	61	49	84	75	1	2	0	0
Indiana	223	306	-27.3%	223	306	0	0	0	0	0	0
Michigan	1,569	1,679	-6.5%	1,441	1,540	119	110	0	0	10	29
Ohio	244	277	-12.0%	227	277	17	0	0	0	0	0
Wisconsin	2,392	2,657	-10.0%	2,116	2,362	135	128	0	0	141	168
West North Central	13,662	12,829	6.5%	13,300	12,438	270	236	0	0	92	156
Iowa	925	1,034	-10.5%	918	1,027	7	7	0	0	0	0
Kansas	26	29	-9.6%	0	0	26	29	0	0	0	0
Minnesota	1,054	1,258	-16.2%	725	903	237	200	0	0	92	156
Missouri	828	1,182	-29.9%	828	1,182	0	0	0	0	0	0
Nebraska	1,382	1,489	-7.2%	1,382	1,489	0	0	0	0	0	0
North Dakota	3,180	2,582	23.2%	3,180	2,582	0	0	0	0	0	0
South Dakota	6,266	5,256	19.2%	6,266	5,256	0	0	0	0	0	0
South Atlantic	19,992	13,021	53.5%	15,729	9,960	3,549	2,497	15	12	699	553
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	233	218	6.5%	233	218	0	0	0	0	0	0
Georgia	3,697	2,410	53.4%	3,676	2,384	10	6	0	0	11	19
Maryland	2,831	1,965	44.0%	0	0	2,831	1,965	0	0	0	0
North Carolina	6,605	3,818	73.0%	6,540	3,773	53	35	13	10	0	0
South Carolina	3,014	1,835	64.2%	2,931	1,788	80	46	2	1	0	0
Virginia	1,765	1,116	58.1%	1,696	1,056	68	60	0	0	0	0
West Virginia	1,848	1,658	11.4%	653	740	507	385	0	0	688	534
East South Central	25,854	22,434	15.2%	25,843	22,424	11	11	0	0	0	0
Alabama	11,143	9,237	20.6%	11,143	9,237	0	0	0	0	0	0
Kentucky	4,418	4,506	-2.0%	4,407	4,495	11	11	0	0	0	0
Mississippi	0	0	--	0	0	0	0	0	0	0	0
Tennessee	10,293	8,691	18.4%	10,293	8,691	0	0	0	0	0	0
West South Central	7,350	6,948	5.8%	6,086	5,962	1,263	984	1	2	0	0
Arkansas	3,009	2,943	2.2%	2,959	2,898	50	45	0	0	0	0
Louisiana	1,180	906	30.2%	0	0	1,180	906	0	0	0	0
Oklahoma	2,035	2,036	-0.1%	2,035	2,036	0	0	0	0	0	0
Texas	1,126	1,062	6.1%	1,092	1,028	33	33	1	2	0	0
Mountain	35,170	34,769	1.2%	33,878	33,273	1,279	1,482	13	14	0	0
Arizona	6,982	6,832	2.2%	6,982	6,832	0	0	0	0	0	0
Colorado	1,825	1,897	-3.8%	1,601	1,630	212	253	13	14	0	0
Idaho	11,024	10,670	3.3%	10,177	9,689	847	981	0	0	0	0
Montana	11,405	10,946	4.2%	11,269	10,791	136	155	0	0	0	0
Nevada	1,881	1,813	3.8%	1,815	1,739	67	74	0	0	0	0
New Mexico	150	193	-22.6%	150	193	0	0	0	0	0	0
Utah	927	1,294	-28.3%	919	1,283	8	11	0	0	0	0
Wyoming	976	1,124	-13.2%	967	1,116	9	8	0	0	0	0
Pacific Contiguous	142,657	162,840	-12.4%	140,598	159,565	2,048	3,256	11	19	0	0
California	26,331	42,363	-37.8%	24,915	39,798	1,405	2,546	11	19	0	0
Oregon	35,443	38,294	-7.4%	35,199	37,980	243	314	0	0	0	0
Washington	80,883	82,183	-1.6%	80,483	81,787	400	396	0	0	0	0
Pacific Noncontiguous	1,761	1,710	3.0%	1,508	1,471	42	19	176	182	34	37
Alaska	1,664	1,644	1.3%	1,489	1,462	0	0	176	182	0	0
Hawaii	97	66	46.1%	20	10	42	19	0	0	34	37
U.S. Total	292,524	300,333	-2.6%	267,336	275,677	23,812	23,034	227	240	1,149	1,382

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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	11,398	11,308	0.8%	787	858	9,322	9,214	179	205	1,110	1,032
Connecticut	873	845	3.4%	3	3	869	841	1	1	0	0
Maine	5,058	5,042	0.3%	0	0	3,885	3,919	68	94	1,105	1,029
Massachusetts	2,369	2,181	8.6%	77	76	2,232	2,047	55	55	5	3
New Hampshire	1,793	2,022	-11.3%	253	291	1,495	1,686	45	45	0	0
Rhode Island	399	366	8.9%	0	0	391	359	7	7	0	0
Vermont	906	852	6.3%	454	487	450	363	2	2	0	0
Middle Atlantic	14,280	14,580	-2.1%	76	80	12,865	13,009	644	693	694	798
New Jersey	1,948	1,877	3.8%	76	80	1,588	1,485	279	305	5	8
New York	6,438	6,605	-2.5%	0	0	6,037	6,182	220	233	180	189
Pennsylvania	5,894	6,098	-3.3%	0	0	5,240	5,343	145	155	509	601
East North Central	32,376	31,926	1.4%	3,896	3,710	26,619	26,393	242	232	1,618	1,591
Illinois	12,391	12,794	-3.1%	105	38	12,279	12,751	8	5	0	0
Indiana	6,188	5,840	5.9%	427	407	5,670	5,332	22	21	69	80
Michigan	8,106	7,749	4.6%	2,115	1,899	5,176	5,066	129	135	685	649
Ohio	2,576	2,421	6.4%	19	23	2,264	2,089	13	15	280	293
Wisconsin	3,114	3,122	-0.2%	1,231	1,342	1,231	1,154	69	57	583	569
West North Central	76,235	75,665	0.8%	24,768	24,783	50,564	50,011	187	174	716	698
Iowa	21,557	21,587	-0.1%	14,857	14,231	6,619	7,283	47	33	35	41
Kansas	18,979	18,661	1.7%	1,902	1,653	17,065	16,996	16	15	-3	-3
Minnesota	13,400	13,666	-1.9%	2,751	3,053	9,915	9,908	54	51	680	655
Missouri	3,059	2,233	37.0%	37	41	2,967	2,130	53	58	3	3
Nebraska	5,670	5,197	9.1%	247	246	5,407	4,933	15	17	0	0
North Dakota	10,734	11,361	-5.5%	4,127	4,651	6,604	6,708	NM	0	1	2
South Dakota	2,837	2,960	-4.2%	849	908	1,988	2,052	0	0	0	0
South Atlantic	34,921	31,101	12.3%	5,108	3,551	18,830	16,505	495	532	10,488	10,513
Delaware	114	118	-3.4%	6	6	90	92	6	6	12	13
District of Columbia	57	47	19.9%	0	0	0	0	57	47	0	0
Florida	7,497	5,886	27.4%	2,680	1,175	2,824	2,694	51	47	1,942	1,969
Georgia	6,994	7,005	-0.1%	293	252	2,583	2,762	2	3	4,116	3,987
Maryland	1,488	1,365	9.0%	8	9	1,360	1,225	27	15	93	116
North Carolina	9,263	8,397	10.3%	387	410	7,429	6,464	188	208	1,259	1,315
South Carolina	2,802	2,479	13.0%	385	410	905	489	0	0	1,512	1,580
Virginia	4,936	4,122	19.8%	1,348	1,289	1,869	1,097	164	205	1,554	1,531
West Virginia	1,770	1,682	5.2%	0	0	1,770	1,682	0	0	0	0
East South Central	7,230	6,767	6.8%	163	146	1,129	714	4	4	5,933	5,903
Alabama	3,804	3,606	5.5%	31	24	507	389	0	0	3,266	3,193
Kentucky	470	515	-8.7%	131	122	10	12	0	0	329	380
Mississippi	1,765	1,563	12.9%	0	0	338	98	0	0	1,427	1,465
Tennessee	1,191	1,083	9.9%	1	0	274	214	4	4	911	865
West South Central	112,403	98,966	13.6%	1,701	1,612	105,502	92,060	94	83	5,106	5,211
Arkansas	1,569	1,467	6.9%	2	2	271	128	6	6	1,291	1,332
Louisiana	2,609	2,741	-4.8%	2	2	79	88	0	0	2,528	2,651
Oklahoma	27,729	23,930	15.9%	1,401	1,401	26,022	22,249	0	0	307	280
Texas	80,496	70,827	13.7%	297	207	79,130	69,595	88	77	980	949
Mountain	46,478	43,485	6.9%	4,213	3,720	41,742	39,304	150	128	373	333
Arizona	5,890	5,683	3.6%	681	626	5,196	5,034	13	23	0	0
Colorado	10,972	10,435	5.1%	513	297	10,443	10,121	13	14	3	3
Idaho	3,785	3,554	6.5%	174	183	3,253	3,053	11	12	346	306
Montana	2,209	2,190	0.9%	242	225	1,945	1,944	0	0	21	21
Nevada	8,546	7,857	8.8%	41	40	8,406	7,748	97	66	3	3
New Mexico	7,474	5,818	28.5%	264	252	7,208	5,563	3	3	0	0
Utah	3,543	3,628	-2.3%	223	249	3,307	3,369	14	10	0	0
Wyoming	4,058	4,321	-6.1%	2,074	1,848	1,984	2,473	0	0	0	0
Pacific Contiguous	77,570	70,944	9.3%	8,197	7,463	65,952	60,043	975	968	2,446	2,470
California	58,632	54,544	7.5%	2,249	2,163	54,786	50,804	933	927	665	650
Oregon	9,233	7,576	21.9%	1,308	1,120	7,359	5,897	29	31	536	528
Washington	9,705	8,824	10.0%	4,641	4,180	3,807	3,343	13	10	1,245	1,292
Pacific Noncontiguous	1,403	1,508	-7.0%	190	190	966	1,086	244	231	3	1
Alaska	200	185	8.2%	99	91	56	50	43	42	3	1
Hawaii	1,202	1,322	-9.1%	91	98	910	1,035	201	189	0	0
U.S. Total	414,292	386,250	7.3%	49,100	46,111	333,491	308,338	3,214	3,251	28,487	28,550

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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	-460	-441	4.3%	0	0	-460	-441	0	0	0	0
Connecticut	3	2	93.2%	0	0	3	2	0	0	0	0
Maine	0	0	--	0	0	0	0	0	0	0	0
Massachusetts	-464	-443	4.7%	0	0	-464	-443	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	-1,205	-1,183	1.9%	-546	-577	-659	-605	0	0	0	0
New Jersey	-115	-162	-28.9%	-115	-162	0	0	0	0	0	0
New York	-431	-416	3.6%	-431	-416	0	0	0	0	0	0
Pennsylvania	-659	-605	8.9%	0	0	-659	-605	0	0	0	0
East North Central	-698	-675	3.5%	-698	-675	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	-698	-675	3.5%	-698	-675	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	47	100	-53.0%	47	100	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	47	100	-53.0%	47	100	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	-2,485	-3,550	-30.0%	-2,485	-3,550	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	-489	-1,248	-60.8%	-489	-1,248	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	-705	-1,025	-31.2%	-705	-1,025	0	0	0	0	0	0
Virginia	-1,292	-1,278	1.1%	-1,292	-1,278	0	0	0	0	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	-620	-686	-9.7%	-620	-686	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	-620	-686	-9.7%	-620	-686	0	0	0	0	0	0
West South Central	-95	-97	-2.4%	-95	-97	0	0	0	0	0	0
Arkansas	40	20	96.5%	40	20	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	-135	-118	14.8%	-135	-118	0	0	0	0	0	0
Texas	0	0	--	0	0	0	0	0	0	0	0
Mountain	-267	-372	-28.2%	-267	-372	0	0	0	0	0	0
Arizona	-5	-46	-90.1%	-5	-46	0	0	0	0	0	0
Colorado	-263	-327	-19.6%	-263	-327	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	-120	410	-129.3%	-120	410	0	0	0	0	0	0
California	-149	407	-136.5%	-149	407	0	0	0	0	0	0
Oregon	0	0	--	0	0	0	0	0	0	0	0
Washington	28	3	842.8%	28	3	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	-5,905	-6,495	-9.1%	-4,785	-5,448	-1,119	-1,047	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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	1,729	1,818	-4.9%	-1	0	1,531	1,595	65	89	134	135
Connecticut	465	547	-15.0%	0	0	465	547	0	0	0	0
Maine	371	396	-6.4%	0	0	172	173	65	89	134	135
Massachusetts	846	827	2.4%	0	0	847	827	0	0	0	0
New Hampshire	48	49	-2.1%	0	0	48	49	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	2,206	2,391	-7.7%	0	1	1,750	1,873	431	450	25	67
New Jersey	552	583	-5.3%	0	1	391	372	136	144	25	67
New York	873	924	-5.5%	0	0	671	712	202	211	0	0
Pennsylvania	781	884	-11.7%	0	0	688	789	93	95	0	0
East North Central	848	844	0.4%	14	16	89	80	143	149	601	600
Illinois	227	254	-10.4%	0	0	-19	-25	0	0	246	278
Indiana	321	306	4.8%	0	0	0	0	21	19	300	287
Michigan	252	260	-2.8%	0	0	112	114	122	129	18	16
Ohio	5	-2	-452.9%	-3	-1	-4	-10	0	0	12	9
Wisconsin	43	27	59.3%	17	17	0	0	0	0	26	9
West North Central	463	458	1.2%	236	220	141	148	29	34	57	56
Iowa	0	2	-100.0%	0	0	0	0	0	0	0	2
Kansas	5	5	5.9%	0	0	0	0	0	0	5	5
Minnesota	405	396	2.4%	183	165	141	148	29	34	52	48
Missouri	1	4	-72.4%	1	4	0	0	0	0	0	0
Nebraska	0	0	--	0	0	0	0	0	0	0	0
North Dakota	52	51	1.3%	52	51	0	0	0	0	0	0
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	4,432	4,305	2.9%	-1	0	2,469	2,091	149	186	1,815	2,028
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	2,983	3,078	-3.1%	0	0	1,523	1,466	0	0	1,461	1,613
Georgia	86	87	-1.8%	0	0	0	0	0	0	86	87
Maryland	326	322	1.4%	0	0	326	322	0	0	0	0
North Carolina	535	577	-7.3%	0	0	302	284	0	0	233	294
South Carolina	42	41	1.1%	0	0	7	6	0	0	34	35
Virginia	471	213	120.9%	0	0	323	28	149	186	0	0
West Virginia	-12	-14	-15.9%	0	0	-11	-14	0	0	0	0
East South Central	72	68	5.8%	64	45	0	0	0	0	8	23
Alabama	0	0	NM	0	0	0	0	0	0	0	0
Kentucky	64	45	42.2%	64	45	0	0	0	0	0	0
Mississippi	0	2	-100.0%	0	0	0	0	0	0	0	2
Tennessee	8	21	-60.6%	0	0	0	0	0	0	8	21
West South Central	1,158	1,213	-4.5%	0	0	122	106	0	0	1,036	1,107
Arkansas	5	4	24.6%	0	0	0	0	0	0	5	4
Louisiana	643	632	1.7%	0	0	0	0	0	0	643	632
Oklahoma	57	48	17.9%	0	0	54	47	0	0	3	1
Texas	453	528	-14.3%	0	0	69	59	0	0	384	469
Mountain	764	708	8.0%	81	84	320	346	0	0	363	278
Arizona	-3	-1	113.8%	0	0	-3	-1	0	0	0	0
Colorado	59	57	4.6%	0	0	18	15	0	0	42	42
Idaho	64	68	-6.4%	0	0	0	0	0	0	64	68
Montana	305	332	-8.2%	0	0	305	332	0	0	0	0
Nevada	29	32	-8.8%	29	32	0	0	0	0	0	0
New Mexico	-1	-1	24.5%	-1	-1	0	0	0	0	0	0
Utah	225	175	28.7%	53	53	0	0	0	0	172	122
Wyoming	85	46	85.6%	0	0	0	0	0	0	85	46
Pacific Contiguous	922	931	-0.9%	-19	11	255	285	0	0	686	635
California	829	836	-0.8%	-17	12	160	188	0	0	686	635
Oregon	34	39	-13.1%	-1	-1	35	40	0	0	0	0
Washington	59	56	5.9%	-1	-1	60	57	0	0	0	0
Pacific Noncontiguous	379	360	5.2%	187	177	-1	1	193	182	0	0
Alaska	-3	-3	14.3%	-3	-3	0	0	0	0	0	0
Hawaii	382	363	5.3%	190	180	-1	1	193	182	0	0
U.S. Total	12,973	13,096	-0.9%	561	553	6,677	6,527	1,010	1,088	4,725	4,928

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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 3.18. Utility Scale Facility Net Generation from Wind
by State, by Sector, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	3,556	3,444	3.3%	230	241	3,294	3,174	29	28	3	2
Connecticut	12	13	-3.2%	0	0	12	13	0	0	0	0
Maine	2,384	2,333	2.2%	0	0	2,384	2,333	0	0	0	0
Massachusetts	221	233	-5.0%	58	62	139	148	22	21	3	2
New Hampshire	407	412	-1.2%	0	0	407	412	0	0	0	0
Rhode Island	159	149	6.5%	0	0	151	142	7	7	0	0
Vermont	373	305	22.2%	173	178	201	127	0	0	0	0
Middle Atlantic	7,588	7,749	-2.1%	0	0	7,579	7,744	3	4	6	1
New Jersey	23	22	0.7%	0	0	23	22	0	0	0	0
New York	3,998	4,136	-3.3%	0	0	3,989	4,131	3	4	6	1
Pennsylvania	3,567	3,591	-0.7%	0	0	3,567	3,591	0	0	0	0
East North Central	26,181	25,778	1.6%	2,930	2,846	23,154	22,859	28	10	70	63
Illinois	11,899	12,268	-3.0%	12	13	11,882	12,249	5	5	0	0
Indiana	5,437	5,089	6.8%	0	0	5,437	5,089	0	1	0	0
Michigan	5,457	5,191	5.1%	2,029	1,836	3,429	3,355	0	0	0	0
Ohio	1,750	1,589	10.2%	11	12	1,673	1,518	3	4	63	55
Wisconsin	1,638	1,641	-0.2%	878	984	733	649	20	0	7	7
West North Central	72,907	72,542	0.5%	24,282	24,237	48,578	48,259	47	46	0	0
Iowa	21,334	21,373	-0.2%	14,834	14,206	6,497	7,163	3	4	0	0
Kansas	18,908	18,598	1.7%	1,900	1,651	16,992	16,932	16	15	0	0
Minnesota	10,714	11,137	-3.8%	2,405	2,656	8,284	8,455	25	26	0	0
Missouri	2,835	2,032	39.5%	0	0	2,835	2,032	0	0	0	0
Nebraska	5,549	5,084	9.1%	169	166	5,380	4,918	0	0	0	0
North Dakota	10,733	11,359	-5.5%	4,127	4,651	6,604	6,708	NM	0	0	0
South Dakota	2,835	2,958	-4.2%	849	908	1,986	2,050	0	0	0	0
South Atlantic	2,888	2,719	6.2%	0	0	2,883	2,714	5	5	0	0
Delaware	5	5	4.9%	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	570	561	1.5%	0	0	570	561	0	0	0	0
North Carolina	543	471	15.3%	0	0	543	471	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	1,770	1,682	5.2%	0	0	1,770	1,682	0	0	0	0
East South Central	41	43	-5.4%	0	0	41	43	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	41	43	-5.4%	0	0	41	43	0	0	0	0
West South Central	103,039	90,660	13.7%	1,628	1,570	101,348	89,037	53	42	10	11
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	27,338	23,599	15.8%	1,339	1,368	25,999	22,231	0	0	0	0
Texas	75,700	67,061	12.9%	289	202	75,349	66,806	53	42	10	11
Mountain	26,339	24,719	6.6%	2,984	2,539	23,349	22,173	3	4	3	3
Arizona	530	570	-7.0%	0	0	530	570	0	0	0	0
Colorado	9,745	9,315	4.6%	508	295	9,234	9,015	0	1	3	3
Idaho	2,655	2,545	4.3%	160	171	2,495	2,374	0	0	0	0
Montana	2,153	2,155	-0.1%	242	225	1,911	1,930	0	0	0	0
Nevada	312	361	-13.6%	0	0	312	361	0	0	0	0
New Mexico	6,092	4,595	32.6%	0	0	6,089	4,592	3	3	0	0
Utah	795	858	-7.4%	0	0	795	858	0	0	0	0
Wyoming	4,057	4,321	-6.1%	2,074	1,848	1,983	2,473	0	0	0	0
Pacific Contiguous	29,371	25,975	13.1%	6,313	5,544	23,048	20,420	6	6	5	5
California	14,024	12,823	9.4%	850	789	13,163	12,023	6	6	5	5
Oregon	7,447	6,227	19.6%	1,244	1,051	6,204	5,176	0	0	0	0
Washington	7,900	6,925	14.1%	4,219	3,704	3,681	3,221	0	0	0	0
Pacific Noncontiguous	757	674	12.3%	99	91	658	582	0	0	0	0
Alaska	155	142	9.4%	99	91	56	50	0	0	0	0
Hawaii	602	532	13.1%	0	0	602	532	0	0	0	0
U.S. Total	272,667	254,303	7.2%	38,466	37,068	233,931	217,006	174	144	97	84

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, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	6,610	6,917	-4.4%	498	559	4,862	5,160	146	170	1,105	1,029
Connecticut	756	792	-4.6%	0	0	756	792	0	0	0	0
Maine	2,662	2,704	-1.5%	0	0	1,489	1,580	68	94	1,105	1,029
Massachusetts	1,169	1,160	0.8%	0	0	1,139	1,132	30	29	0	0
New Hampshire	1,386	1,610	-13.9%	253	291	1,088	1,274	45	45	0	0
Rhode Island	211	203	4.0%	0	0	211	203	0	0	0	0
Vermont	426	448	-4.9%	245	268	179	178	2	2	0	0
Middle Atlantic	5,342	5,653	-5.5%	0	0	4,157	4,332	509	540	676	781
New Jersey	935	929	0.7%	0	0	780	763	155	166	0	0
New York	2,142	2,286	-6.3%	0	0	1,754	1,873	213	225	174	188
Pennsylvania	2,265	2,438	-7.1%	0	0	1,623	1,696	140	149	501	593
East North Central	5,561	5,628	-1.2%	763	706	3,051	3,176	201	220	1,546	1,526
Illinois	426	474	-10.1%	90	22	336	452	0	0	0	0
Indiana	460	473	-2.9%	320	324	49	49	22	20	69	80
Michigan	2,531	2,494	1.5%	0	0	1,718	1,711	127	135	685	649
Ohio	707	727	-2.7%	0	3	484	480	7	8	216	236
Wisconsin	1,437	1,460	-1.6%	352	358	463	484	45	57	577	561
West North Central	2,147	2,443	-12.1%	470	534	823	1,086	138	126	716	698
Iowa	211	210	0.7%	16	21	117	120	43	28	35	41
Kansas	64	57	11.2%	0	0	67	60	0	0	-3	-3
Minnesota	1,645	1,933	-14.9%	343	395	592	859	29	24	680	655
Missouri	133	144	-7.8%	32	38	47	46	51	56	3	3
Nebraska	93	97	-4.1%	78	80	0	0	15	17	0	0
North Dakota	1	2	-48.0%	0	0	0	0	0	0	1	2
South Dakota	0	0	--	0	0	0	0	0	0	0	0
South Atlantic	19,794	19,695	0.5%	2,244	2,029	6,706	6,760	358	395	10,486	10,511
Delaware	59	63	-5.9%	0	0	47	50	0	0	12	13
District of Columbia	57	47	19.9%	0	0	0	0	57	47	0	0
Florida	5,084	5,009	1.5%	654	438	2,446	2,559	45	44	1,939	1,968
Georgia	4,999	5,018	-0.4%	0	0	882	1,031	0	0	4,116	3,987
Maryland	521	536	-2.8%	0	0	412	412	17	8	93	116
North Carolina	2,610	2,812	-7.2%	0	0	1,275	1,406	76	91	1,259	1,315
South Carolina	2,291	2,400	-4.5%	383	410	397	409	0	0	1,512	1,580
Virginia	4,173	3,809	9.6%	1,207	1,180	1,248	893	164	205	1,554	1,531
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	6,299	6,345	-0.7%	93	103	278	339	0	0	5,927	5,903
Alabama	3,446	3,426	0.6%	0	0	180	232	0	0	3,266	3,193
Kentucky	431	495	-13.0%	93	103	8	12	0	0	329	380
Mississippi	1,439	1,477	-2.6%	0	0	13	12	0	0	1,427	1,465
Tennessee	982	948	3.7%	0	0	77	83	0	0	905	865
West South Central	5,892	6,051	-2.6%	0	0	757	811	39	39	5,096	5,200
Arkansas	1,366	1,437	-4.9%	0	0	69	99	6	6	1,291	1,332
Louisiana	2,607	2,739	-4.8%	0	0	79	88	0	0	2,528	2,651
Oklahoma	329	299	10.2%	0	0	23	19	0	0	307	280
Texas	1,590	1,577	0.8%	0	0	586	606	33	33	970	938
Mountain	1,049	977	7.5%	15	12	643	616	25	22	367	327
Arizona	219	171	28.2%	0	0	219	171	0	0	0	0
Colorado	164	166	-0.9%	0	0	164	166	0	0	0	0
Idaho	491	465	5.4%	15	12	119	136	11	12	346	306
Montana	21	21	0.7%	0	0	0	0	0	0	21	21
Nevada	53	58	-8.0%	0	0	53	58	0	0	0	0
New Mexico	21	18	20.3%	0	0	21	18	0	0	0	0
Utah	79	78	2.3%	0	0	66	68	14	10	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	8,787	8,688	1.1%	573	676	4,972	4,723	821	841	2,422	2,447
California	5,946	5,808	2.4%	93	139	4,434	4,242	779	801	640	627
Oregon	1,037	981	5.8%	59	62	413	360	29	31	536	528
Washington	1,803	1,899	-5.0%	421	475	124	122	13	10	1,245	1,292
Pacific Noncontiguous	351	336	4.4%	53	55	51	49	244	231	3	1
Alaska	45	44	4.4%	0	0	0	0	43	42	3	1
Hawaii	306	293	4.4%	53	55	51	49	201	189	0	0
U.S. Total	61,832	62,733	-1.4%	4,708	4,674	26,300	27,051	2,481	2,585	28,343	28,423

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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 3.20. Utility Scale Facility Net Generation from Geothermal
by State, by Sector, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
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	4,004	3,870	3.5%	223	249	3,747	3,621	33	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	83	84	-1.6%	0	0	83	84	0	0	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	3,462	3,292	5.2%	0	0	3,429	3,292	33	0	0	0
New Mexico	13	13	1.3%	0	0	13	13	0	0	0	0
Utah	446	481	-7.3%	223	249	223	232	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	11,853	11,734	1.0%	786	773	11,067	10,961	0	0	0	0
California	11,677	11,560	1.0%	786	771	10,891	10,789	0	0	0	0
Oregon	176	174	1.1%	0	2	176	173	0	0	0	0
Washington	0	0	--	0	0	0	0	0	0	0	0
Pacific Noncontiguous	110	323	-65.9%	0	0	110	323	0	0	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	110	323	-65.9%	0	0	110	323	0	0	0	0
U.S. Total	15,967	15,927	0.3%	1,009	1,022	14,924	14,905	33	0	0	0

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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 3.21. Net Generation from Solar Photovoltaic
by State, by Sector, 2018 and 2017 (Thousand Megawatthours)

	All Sectors						Electric Power Sector				Commercial Sector						Industrial Sector						Residential Sector		
							Electric Utilities		Independent Power Producers								Estimated Generation From Utility and Small Scale Facilities		Generation at Utility Scale Facilities		Estimated Small Scale Generation				
	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 Small Scale Generation		Estimated Generation From Utility and Small Scale Facilities		Generation at Utility Scale Facilities		Estimated Small Scale Generation		Estimated Small Scale Generation	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	4,204	3,164	32.9%	1,232	947	2,972	2,217	59	58	1,167	880	1,629	1,169	4	7	1,626	1,162	118	99	2	1	116	97	1,231	958
Connecticut	605	447	35.4%	106	40	500	407	3	3	101	36	200	157	1	1	199	156	25	21	0	0	25	21	276	230
Maine	68	46	45.7%	12	5	55	41	0	0	12	5	19	14	0	0	19	14	0	0	0	0	0	0	36	27
Massachusetts	3,062	2,304	32.9%	978	788	2,083	1,516	19	14	954	767	1,280	905	3	6	1,277	899	84	70	2	1	82	69	724	547
New Hampshire	108	87	24.0%	0	0	108	87	0	0	0	0	32	26	0	0	32	26	7	5	0	0	7	5	69	56
Rhode Island	124	69	79.7%	29	14	95	55	0	0	29	14	51	27	0	0	51	27	0	0	0	0	0	0	44	28
Vermont	237	210	12.8%	107	99	130	111	37	41	70	58	47	40	0	0	47	40	2	2	0	0	2	2	81	70
Middle Atlantic	5,176	4,378	18.2%	1,350	1,178	3,825	3,199	76	80	1,129	934	1,853	1,594	132	149	1,721	1,445	214	191	12	16	202	174	1,903	1,580
New Jersey	2,903	2,586	12.2%	990	926	1,912	1,660	76	80	785	699	1,083	1,011	124	139	959	872	131	112	5	8	126	104	827	684
New York	1,794	1,364	31.5%	297	183	1,497	1,182	0	0	294	178	616	439	4	5	612	435	17	14	0	0	17	14	868	733
Pennsylvania	479	427	12.1%	62	70	416	357	0	0	50	56	155	144	5	6	150	138	66	64	7	8	59	56	207	163
East North Central	1,134	863	31.4%	634	520	501	343	204	157	415	358	326	208	13	3	312	205	28	22	2	2	26	20	162	118
Illinois	161	111	46.1%	66	52	95	58	2	2	60	50	65	38	3	0	61	38	1	0	0	0	1	0	34	21
Indiana	389	313	24.4%	291	278	98	35	107	84	184	194	66	17	0	0	66	17	3	1	0	0	3	1	29	16
Michigan	197	129	53.4%	118	63	79	65	87	63	29	0	45	34	2	0	43	34	2	1	0	0	2	1	34	31
Ohio	272	234	16.2%	119	105	153	129	7	8	107	92	116	99	3	3	113	96	9	8	2	2	7	6	34	27
Wisconsin	115	77	48.8%	40	21	75	56	0	0	35	21	35	20	5	0	30	20	14	11	0	0	14	11	32	24
West North Central	1,660	1,055	57.3%	1,181	680	478	376	16	12	1,164	666	235	195	2	2	233	193	18	10	0	0	18	10	227	173
Iowa	138	94	46.1%	11	5	126	89	7	5	5	0	80	56	0	0	80	56	4	3	0	0	4	3	43	31
Kansas	35	22	58.2%	8	5	27	17	2	2	6	4	10	5	0	0	10	5	0	0	0	0	0	0	17	11
Minnesota	1,123	655	71.5%	1,042	596	81	59	3	2	1,039	594	28	24	0	0	28	24	10	5	0	0	10	5	43	30
Missouri	324	261	24.2%	91	56	232	204	5	3	85	52	112	108	2	2	111	106	4	1	0	0	4	1	118	97
Nebraska	38	21	82.8%	27	15	11	5	0	0	27	15	4	2	0	0	4	2	1	0	0	0	1	0	6	3
North Dakota	0	0	13.3%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Dakota	3	3	-9.5%	2	2	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0
South Atlantic	14,469	10,460	38.3%	12,187	8,665	2,282	1,795	2,812	1,501	9,241	7,031	788	687	131	132	657	555	307	251	2	2	305	249	1,320	990
Delaware	160	143	11.8%	50	50	110	92	6	6	43	42	32	30	1	1	32	28	9	5	0	0	9	5	69	59
District of Columbia	71	52	37.1%	0	0	71	52	0	0	0	0	43	29	0	0	43	29	0	0	0	0	0	0	29	23
Florida	2,790	1,148	143.1%	2,361	855	429	293	1,974	715	378	135	116	96	6	3	110	93	13	11	2	2	11	9	308	190
Georgia	2,265	2,212	2.4%	1,996	1,986	270	226	293	252	1,701	1,731	37	33	2	3	35	30	218	180	0	0	218	180	17	16
Maryland	1,246	1,002	24.3%	397	267	849	735	8	9	378	252	242	211	11	7	232	204	37	33	0	0	37	33	580	498
North Carolina	6,323	5,300	19.3%	6,110	5,114	212	186	387	410	5,611	4,587	228	229	112	118	117	112	7	7	0	0	7	7	89	67
South Carolina	759	217	249.4%	510	80	249	138	2	0	508	80	64	33	0	0	64	33	22	13	0	0	22	13	163	92
Virginia	845	379	123.1%	763	313	82	66	141	109	622	204	23	24	0	0	23	24	2	1	0	0	2	1	58	41
West Virginia	10	8	20.8%	0	0	10	8	0	0	0	0	2	2	0	0	2	2	0	0	0	0	0	0	7	6
East South Central	1,034	509	103.2%	890	379	144	130	69	43	810	331	103	94	4	4	98	90	8	2	6	0	2	1	44	39
Alabama	368	189	95.1%	357	181	11	8	31	24	327	157	7	5	0	0	7	5	1	0	0	0	1	0	3	2
Kentucky	71	45	59.8%	39	20	32	25	38	19	2	1	19	15	0	0	19	15	1	0	0	0	1	0	12	10
Mississippi	337	96	249.2%	326	86	11	11	0	0	326	86	7	6	0	0	7	6	0	1	0	0	0	1	4	3
Tennessee	258	179	44.1%	168	92	90	87	1	0	156	88	70	68	4	4	65	63	6	1	6	0	0	1	25	23
West South Central	4,449	2,947	51.0%	3,472	2,255	977	692	73	42	3,397	2,212	215	146	2	2	213	144	2	0	0	0	2	0	762	548
Arkansas	225	41	453.2%	203	31	22	10	2	2	202	29	8	4	0	0	8	4	1	0	0	0	1	0	13	6
Louisiana	230	202	13.8%	2	2	229	200	2	2	0	0	15	8	0	0	15	8	0	0	0	0	0	0	214	192
Oklahoma	73	38	89.9%	62	33	11	6	62	33	0	0	4	1	0	0	4	1	0	0	0	0	0	0	7	4
Texas	3,921	2,665	47.1%	3,206	2,189	716	476	8	5	3,195	2,182	189	133	2	2	187	131	1	0	0	0	1	0	528	345
Mountain	18,058	16,400	10.1%	14,003	13,035	4,055	3,365	991	920	12,920	12,010	1,322	1,199	89	102	1,233	1,097	71	55	3	3	69	52	2,754	2,216
Arizona	6,630	6,111	8.5%	4,364	4,218	2,265	1,893	681	626	3,670	3,569	744	659	13	23	731	635	24	17	0	0	24	17	1,511	1,241
Colorado	1,653	1,485	11.3%	1,062	954	590	531	5	2	1,045	940	235	225	12	12	222	212	2	2	0	0	2	2	366	317
Idaho	589	476	23.9%	556	454																				

Table 3.22. Utility Scale Facility Net Generation from Solar Thermal
by State, by Sector, 2018 and 2017 (Thousand Megawatthours)

	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	
Census Division and State	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
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	51	22	139.0%	51	22	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	51	22	139.0%	51	22	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	1,082	884	22.4%	0	0	1,082	884	0	0	0	0
Arizona	776	724	7.2%	0	0	776	724	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	306	160	91.3%	0	0	306	160	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	2,458	2,364	4.0%	0	0	2,458	2,364	0	0	0	0
California	2,458	2,364	4.0%	0	0	2,458	2,364	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	3,592	3,269	9.9%	51	22	3,540	3,248	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), 2008 - 2018
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2008	315,244	29,554	18,263	509,330	110,680	610,131	23,729	1,616,931
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
Year 2016								
January	21,767	887	1,437	69,485	12,156	61,034	2,214	168,980
February	19,988	1,183	1,742	63,128	11,095	57,474	2,149	156,760
March	19,348	680	1,609	64,650	13,241	58,071	2,305	159,905
April	16,611	676	1,417	60,432	12,636	54,858	2,115	148,745
May	16,955	760	1,799	63,171	12,648	56,622	1,935	153,892
June	18,196	694	1,885	65,879	12,958	56,133	2,023	157,769
July	19,422	698	1,905	70,075	12,519	57,550	2,179	164,348
August	18,885	570	1,860	71,562	12,770	57,813	2,303	165,764
September	16,674	524	1,326	65,239	12,068	53,760	2,051	151,642
October	16,523	657	1,690	62,957	11,961	55,338	2,002	151,128
November	16,378	623	1,764	61,410	11,932	58,348	1,965	152,420
December	19,413	654	1,688	67,424	12,897	71,855	2,099	176,031
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

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, 2008 - 2018
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2008	37,220	5,479	1,353	204,167	22,109	17,052	4,854	292,234
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
Year 2016								
January	1,453	69	116	20,662	1,435	2,335	701	26,770
February	1,382	118	111	18,705	1,261	2,381	724	24,682
March	1,261	82	120	19,582	1,629	2,406	755	25,835
April	1,077	44	74	17,200	1,281	2,193	658	22,526
May	946	48	73	18,626	1,262	1,923	662	23,540
June	980	34	94	19,116	1,412	1,840	691	24,166
July	1,222	35	101	20,428	1,469	1,966	705	25,925
August	1,124	42	107	21,332	1,540	1,869	722	26,737
September	993	36	105	18,880	1,573	1,795	572	23,954
October	1,104	51	115	17,131	1,479	1,748	609	22,237
November	1,035	37	108	17,198	1,513	2,207	608	22,708
December	1,344	99	113	18,567	1,547	2,328	641	24,639
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

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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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, 2008 - 2018
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2008	22,991	1,822	177	20,183	0	8,863	6,054	60,091
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
Year 2016								
January	918	158	34	5,063	0	979	434	7,585
February	902	102	30	4,502	0	918	399	6,851
March	884	28	26	4,469	0	927	477	6,812
April	556	63	4	4,332	0	915	462	6,332
May	429	51	0	4,348	0	868	470	6,165
June	577	54	2	4,938	0	869	430	6,870
July	579	105	19	5,772	0	937	480	7,891
August	613	67	0	5,946	0	967	484	8,076
September	609	36	0	4,864	0	929	468	6,906
October	607	35	0	4,305	0	853	441	6,241
November	727	130	2	4,080	0	896	407	6,242
December	912	97	24	4,736	0	960	429	7,159
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

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, 2008 - 2018
(Billion Btus)

Period	Coal	Petroleum Liquids	Petroleum Coke	Natural Gas	Other Gas	Renewable Sources	Other	Total
Annual Totals								
2008	255,032	22,253	16,733	284,980	88,571	584,216	12,821	1,264,606
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
Year 2016								
January	17,018	628	1,281	41,752	10,722	57,036	1,079	129,515
February	15,407	917	1,596	37,987	9,834	53,440	1,025	120,206
March	15,291	560	1,459	38,835	11,612	54,052	1,071	122,880
April	13,277	560	1,334	37,592	11,355	51,275	994	116,388
May	13,825	652	1,724	38,470	11,386	53,230	803	120,091
June	14,642	589	1,787	39,640	11,547	52,954	902	122,062
July	15,353	552	1,781	41,607	11,050	54,044	993	125,380
August	14,958	452	1,747	42,044	11,230	54,370	1,097	125,897
September	13,385	443	1,216	39,695	10,496	50,696	1,010	116,942
October	12,983	562	1,568	39,902	10,481	52,423	952	118,871
November	12,703	443	1,652	38,490	10,419	54,521	949	119,175
December	14,747	432	1,547	42,055	11,350	67,789	1,028	138,948
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

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.

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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, 2008 through 2018

Year	Coal	Petroleum	Natural Gas	Other Gases	Nuclear	Hydroelectric Conventional	Other Renewables	Hydroelectric Pumped Storage	Other Energy Sources
Total (All Sectors)									
2008	598	1,170	1,655	43	66	1,423	1,076	39	29
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
Electric Utilities									
2008	348	866	774	--	37	902	107	34	1
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
Independent Power Producers, Non-Combined Heat and Power Plants									
2008	99	166	365	--	29	464	751	5	2
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
Independent Power Producers, Combined Heat and Power Plants									
2008	47	12	169	3	--	--	36	--	--
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
Commercial Sector									
2008	20	62	106	1	--	9	49	--	1
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
Industrial Sector									
2008	84	64	241	39	--	48	133	--	25
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

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, 2008 through 2018 (Megawatts)

Utility Scale Capacity											Small Scale Capacity
Year	Coal	Petroleum	Natural Gas	Other Gases	Nuclear	Hydroelectric Conventional	Other Renewable Sources	Hydroelectric Pumped Storage	Other Energy Sources	Utility Total	Estimated Photovoltaic
Total (All Sectors)											
2008	313,322.0	57,445.0	397,460.0	1,995.0	100,755.0	77,930.0	38,466.0	21,858.0	942.0	1,010,171.0	--
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
Electric Utilities											
2008	231,857.0	30,657.0	173,106.0	--	54,376.0	72,142.0	4,066.0	18,664.0	39.0	584,908.0	--
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	--
Independent Power Producers, Non-Combined Heat and Power Plants											
2008	71,864.0	24,823.0	179,169.0	--	46,379.0	5,433.0	28,139.0	3,193.0	46.0	359,044.0	--
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	--
Independent Power Producers, Combined Heat and Power Plants											
2008	5,927.0	900.0	29,575.0	206.0	--	--	701.0	--	--	37,309.0	--
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	--
Commercial Sector											
2008	428.0	352.0	1,059.0	5.0	--	22.0	444.0	--	3.0	2,312.0	--
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
Industrial Sector											
2008	3,246.0	713.0	14,551.0	1,784.0	--	334.0	5,116.0	--	854.0	26,599.0	--
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
Residential Sector											
2014	--	--	--	--	--	--	--	--	--	--	3,346.3
2015	--	--	--	--	--	--	--	--	--	--	5,191.5
2016	--	--	--	--	--	--	--	--	--	--	7,527.0
2017	--	--	--	--	--	--	--	--	--	--	9,626.8
2018	--	--	--	--	--	--	--	--	--	--	11,720.4

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, 2008 through 2018 (Megawatts) (Page 1)

Utility Scale Capacity								Utility and Small Scale Capacity		
Year	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)										
2008	24,651.0	70.8	464.8	6,864.0	2,229.0	4,186.0	38,466.0	--	70.8	535.6
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
Electric Utilities										
2008	3,190.0	12.5	1.0	427.0	159.0	276.0	4,066.0	--	12.5	13.5
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
Independent Power Producers, Non-Combined Heat and Power Plants										
2008	21,461.0	57.2	463.8	1,196.0	2,070.0	2,891.0	28,139.0	--	57.2	521.0
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

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,

2008 through 2018 (Megawatts) (Page 2)

Utility Scale Capacity								Utility and Small Scale Capacity		
Year	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										
2008	--	--	--	223.0	--	478.0	701.0	--	--	--
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
Commercial Sector										
2008	--	0.1	--	8.0	--	436.0	444.0	--	0.1	0.1
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
Industrial Sector										
2008	--	1.0	--	5,010.0	--	105.0	5,116.0	--	1.0	1.0
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
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

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, 2018 (Megawatts)

Energy Source	Facility Type	Number of Generators	Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity
Coal	Utility Scale	738	264,072.5	242,785.6	244,283.9
Petroleum	Utility Scale	3,647	37,028.5	32,218.2	35,305.5
Natural Gas	Utility Scale	5,952	537,292.1	470,236.9	505,754.0
Other Gases	Utility Scale	97	2,894.4	2,543.9	2,585.0
Nuclear	Utility Scale	98	104,270.2	99,432.9	101,689.8
Hydroelectric Conventional	Utility Scale	4,041	79,911.6	79,871.8	79,264.3
Wind	Utility Scale	1,316	94,970.5	94,417.7	94,522.1
Solar Photovoltaic	Utility Scale	3,369	30,464.1	30,120.5	29,620.2
Solar Thermal	Utility Scale	19	1,774.6	1,757.9	1,581.8
Wood and Wood-Derived Fuels	Utility Scale	346	9,849.3	8,694.6	8,805.9
Geothermal	Utility Scale	170	3,806.0	2,444.3	2,776.6
Other Biomass	Utility Scale	1,959	5,713.7	5,038.6	5,103.1
Hydroelectric Pumped Storage	Utility Scale	153	21,871.3	22,830.2	22,689.6
Other Energy Sources	Utility Scale	213	2,569.1	2,346.7	2,383.9
Total	Utility Scale	22,118	1,196,487.9	1,094,739.8	1,136,365.7
Small Scale Photovoltaic	Small Scale	--	--	19,547.1	--
Estimated Total Photovoltaic	Utility and Small Scale	--	--	49,667.6	--
Estimated Total Solar	Utility and Small Scale	--	--	51,425.5	--

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, 2018 (Megawatts)

Producer Type	Facility Type	Number of Generators	Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity
Electric Power Sector					
Electric Utilities	Utility Scale	9,588	661,209.8	604,670.7	626,741.6
Independent Power Producers, Non-Combined Heat and Power Plants	Utility Scale	9,089	465,466.6	428,716.6	443,988.5
Independent Power Producers, Combined Heat and Power Plants	Utility Scale	505	34,183.6	30,293.3	32,737.1
Total	Utility Scale	19,182	1,160,860.0	1,063,680.6	1,103,467.2
Commercial and Industrial Sectors					
Commercial Sector	Utility Scale	1,421	4,919.6	4,454.6	4,559.1
Industrial Sector	Utility Scale	1,515	30,708.3	26,604.6	28,339.4
Total	Utility Scale	2,936	35,627.9	31,059.2	32,898.5
All Sectors					
Total	Utility Scale	22,118	1,196,487.9	1,094,739.8	1,136,365.7
Small Scale					
Estimated Solar Photovoltaic	Small Scale	--	--	19,547.1	--

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, 2019-2023 (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 2019						
U.S. Total	653	26,958.8	222	19,248.3	431	7,710.5
Coal	1	17.0	51	12,725.9	-50	-12,708.9
Petroleum	15	36.6	22	229.7	-7	-193.1
Natural Gas	86	8,260.9	57	4,207.0	29	4,053.9
Other Gases	--	--	--	--	--	--
Nuclear	--	--	2	1,481.8	-2	-1,481.8
Hydroelectric Conventional	9	18.6	16	132.0	-7	-113.4
Wind	86	12,320.6	1	75.0	85	12,245.6
Solar Thermal and Photovoltaic	393	5,796.9	20	9.4	373	5,787.5
Wood and Wood-Derived Fuels	5	228.4	10	294.7	-5	-66.3
Geothermal	--	--	4	3.7	-4	-3.7
Other Biomass	16	28.5	39	89.1	-23	-60.6
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	42	251.3	--	--	42	251.3
Year 2020						
U.S. Total	493	37,002.0	107	12,709.3	386	24,292.7
Coal	--	--	25	5,385.5	-25	-5,385.5
Petroleum	2	4.4	3	25.6	-1	-21.2
Natural Gas	94	9,740.7	56	4,707.6	38	5,033.1
Other Gases	--	--	--	--	--	--
Nuclear	--	--	3	2,513.9	-3	-2,513.9
Hydroelectric Conventional	27	254.5	2	1.8	25	252.7
Wind	87	14,674.0	--	--	87	14,674.0
Solar Thermal and Photovoltaic	265	11,918.6	--	--	265	11,918.6
Wood and Wood-Derived Fuels	1	42.0	1	7.8	--	34.2
Geothermal	3	114.9	--	--	3	114.9
Other Biomass	2	2.8	17	67.1	-15	-64.3
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	12	250.1	--	--	12	250.1
Year 2021						
U.S. Total	170	23,999.2	29	6,297.1	141	17,702.1
Coal	--	--	8	1,793.4	-8	-1,793.4
Petroleum	--	--	5	28.0	-5	-28.0
Natural Gas	63	13,169.7	6	1,624.0	57	11,545.7
Other Gases	--	--	--	--	--	--
Nuclear	1	1,100.0	3	2,845.8	-2	-1,745.8
Hydroelectric Conventional	13	36.8	6	4.9	7	31.9
Wind	25	3,676.0	--	--	25	3,676.0
Solar Thermal and Photovoltaic	39	4,246.8	--	--	39	4,246.8
Wood and Wood-Derived Fuels	--	--	--	--	--	--
Geothermal	--	--	--	--	--	--
Other Biomass	3	31.0	1	1.0	2	30.0
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	26	1,738.9	--	--	26	1,738.9

Notes: These data reflect plans as of December 31, 2018

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, 2019-2023 (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 2022						
U.S. Total	111	13,774.4	35	7,281.5	76	6,492.9
Coal	--	--	16	3,813.0	-16	-3,813.0
Petroleum	--	--	4	1,740.0	-4	-1,740.0
Natural Gas	25	10,205.2	13	922.8	12	9,282.4
Other Gases	--	--	--	--	--	--
Nuclear	1	1,100.0	1	804.2	--	295.8
Hydroelectric Conventional	55	158.8	--	--	55	158.8
Wind	9	795.4	--	--	9	795.4
Solar Thermal and Photovoltaic	11	1,148.9	--	--	11	1,148.9
Wood and Wood-Derived Fuels	--	--	--	--	--	--
Geothermal	--	--	--	--	--	--
Other Biomass	2	1.2	--	--	2	1.2
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	8	364.9	1	1.5	7	363.4
Year 2023						
U.S. Total	11	2,599.0	47	3,967.3	-36	-1,368.3
Coal	--	--	9	2,435.0	-9	-2,435.0
Petroleum	--	--	11	187.9	-11	-187.9
Natural Gas	3	994.0	15	1,301.0	-12	-307.0
Other Gases	--	--	--	--	--	--
Nuclear	--	--	--	--	--	--
Hydroelectric Conventional	--	--	6	21.3	-6	-21.3
Wind	1	500.0	--	--	1	500.0
Solar Thermal and Photovoltaic	4	605.0	--	--	4	605.0
Wood and Wood-Derived Fuels	--	--	2	16.0	-2	-16.0
Geothermal	--	--	--	--	--	--
Other Biomass	--	--	3	5.1	-3	-5.1
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	3	500.0	1	1.0	2	499.0
Years 2019-2023						
U.S. Total	1,438	104,333.4	440	49,503.5	998	54,829.9
Coal	1	17.0	109	26,152.8	-108	-26,135.8
Petroleum	17	41.0	45	2,211.2	-28	-2,170.2
Natural Gas	271	42,370.5	147	12,762.4	124	29,608.1
Other Gases	--	--	--	--	--	--
Nuclear	2	2,200.0	9	7,645.7	-7	-5,445.7
Hydroelectric Conventional	104	468.7	30	160.0	74	308.7
Wind	208	31,966.0	1	75.0	207	31,891.0
Solar Thermal and Photovoltaic	712	23,716.2	20	9.4	692	23,706.8
Wood and Wood-Derived Fuels	6	270.4	13	318.5	-7	-48.1
Geothermal	3	114.9	4	3.7	-1	111.2
Other Biomass	23	63.5	60	162.3	-37	-98.8
Hydroelectric Pumped Storage	--	--	--	--	--	--
Other Energy Sources	91	3,105.2	2	2.5	89	3,102.7

Notes: These data reflect plans as of December 31, 2018

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, 2018 (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	--	--	--	--	38	14,611.8	13,304.2	13,486.7
Petroleum	23	42.8	42.6	42.8	80	2,368.3	1,973.9	2,040.2
Natural Gas	122	21,809.3	19,399.8	20,521.6	98	7,719.8	6,677.8	6,913.6
Other Gases	--	--	--	--	--	--	--	--
Nuclear	--	--	--	--	1	550.0	607.7	637.0
Hydroelectric Conventional	4	135.2	135.1	135.1	26	49.7	47.6	47.4
Wind	62	6,875.2	6,873.8	6,873.8	2	12.2	3.7	5.2
Solar Thermal and Photovoltaic	486	4,910.8	4,810.2	4,732.6	2	0.8	0.8	0.8
Wood and Wood-Derived Fuels	2	42.7	30.0	30.4	8	173.5	149.3	151.7
Geothermal	5	123.2	82.4	117.5	12	34.2	25.6	31.5
Other Biomass	9	53.4	53.4	53.4	29	195.0	123.3	125.2
Hydroelectric Pumped Storage	--	--	--	--	--	--	--	--
Other Energy Sources	35	220.1	220.0	220.0	4	5.7	5.7	5.7
Total	748	34,212.7	31,647.3	32,727.2	300	25,721.0	22,919.6	23,445.0

Energy Source	Other Changes to Existing Capacity			
		Generator Nameplate Capacity	Net Summer Capacity	Net Winter Capacity
Coal		-1,047.0	-911.9	-980.0
Petroleum		-2,892.5	-2,631.6	-2,579.9
Natural Gas		-569.4	179.7	-164.1
Other Gases		221.3	168.1	177.9
Nuclear		27.8	411.7	458.7
Hydroelectric Conventional		133.5	-108.3	-177.7
Wind		-333.4	-148.9	-150.3
Solar Thermal and Photovoltaic		-68.7	-42.5	-141.2
Wood and Wood-Derived Fuels		-79.1	-17.0	-21.1
Geothermal		-15.4	-95.8	-51.2
Other Biomass		-15.6	-23.4	-24.7
Hydroelectric Pumped Storage		228.0	19.8	24.4
Other Energy Sources		-834.2	-784.4	-744.2
Total		-5,244.7	-3,984.5	-4,373.4

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, 2018 and 2017 (Megawatts)

Census Division and State	Renewable Sources		Fossil Fuels		Hydroelectric Pumped Storage		Other Energy Storage		Nuclear		All Other Sources		All Sources	
	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	5,862.1	5,668.3	23,024.1	21,234.7	1,797.4	1,797.4	28.7	24.7	4,003.5	4,014.1	48.0	320.9	34,763.8	33,060.1
Connecticut	412.6	361.2	7,290.6	6,125.4	29.4	29.4	1.6	1.6	2,073.1	2,087.8	26.0	298.9	9,833.3	8,904.3
Maine	2,346.5	2,345.6	2,478.8	2,536.5	0.0	0.0	16.2	16.2	0.0	0.0	22.0	22.0	4,863.5	4,920.3
Massachusetts	1,385.0	1,289.4	9,034.8	8,380.9	1,768.0	1,768.0	7.9	4.9	679.0	677.2	0.0	0.0	12,874.7	12,120.4
New Hampshire	928.1	928.9	2,289.9	2,262.9	0.0	0.0	0.0	0.0	1,251.4	1,249.1	0.0	0.0	4,469.4	4,440.9
Rhode Island	126.2	113.3	1,832.1	1,831.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,958.3	1,944.4
Vermont	663.7	629.9	97.9	97.9	0.0	0.0	3.0	2.0	0.0	0.0	0.0	0.0	764.6	729.8
Middle Atlantic	11,202.0	10,856.0	73,664.0	68,017.0	3,411.6	3,409.8	96.7	72.4	18,700.2	19,295.6	11.2	420.9	107,085.7	102,071.7
New Jersey	1,012.0	911.9	12,437.7	12,370.9	420.0	420.0	22.3	1.0	3,500.2	4,107.9	11.2	11.2	17,403.4	17,822.9
New York	7,335.6	7,067.5	26,951.1	26,026.8	1,408.6	1,406.8	26.0	21.0	5,403.0	5,390.7	0.0	221.7	41,124.3	40,134.5
Pennsylvania	2,854.4	2,876.6	34,275.2	29,619.3	1,583.0	1,583.0	48.4	50.4	9,797.0	9,797.0	0.0	188.0	48,558.0	44,114.3
East North Central	12,561.2	11,631.1	112,580.4	114,316.8	2,152.0	2,134.0	188.7	167.4	19,034.4	19,024.4	187.1	188.1	146,703.8	147,461.8
Illinois	4,782.3	4,447.9	29,055.3	28,931.1	0.0	0.0	132.7	112.4	11,582.4	11,577.4	78.0	78.0	45,630.7	45,146.8
Indiana	2,657.2	2,442.8	23,928.4	23,159.4	0.0	0.0	22.0	22.0	0.0	0.0	88.0	89.0	26,695.6	25,713.2
Michigan	2,830.6	2,590.8	20,614.2	20,790.1	2,152.0	2,134.0	1.0	0.0	4,122.2	4,119.8	0.0	0.0	29,720.0	29,634.7
Ohio	1,053.7	923.1	25,920.9	26,910.3	0.0	0.0	33.0	33.0	2,134.0	2,134.0	0.0	0.0	29,141.6	30,000.4
Wisconsin	1,237.4	1,226.5	13,061.6	14,525.9	0.0	0.0	0.0	0.0	1,195.8	1,193.2	21.1	21.1	15,515.9	16,966.7
West North Central	28,741.4	26,508.1	59,156.2	60,565.5	657.0	657.0	17.1	3.2	5,443.4	5,443.4	22.8	24.5	94,037.9	93,201.7
Iowa	8,433.3	7,147.7	9,806.4	9,921.7	0.0	0.0	1.1	0.0	601.4	601.4	0.0	0.0	18,842.2	17,670.8
Kansas	5,379.4	5,136.2	9,025.4	9,775.8	0.0	0.0	0.0	0.0	1,225.0	1,225.0	0.8	0.8	15,630.6	16,137.8
Minnesota	5,119.5	4,902.1	10,147.5	10,000.7	0.0	0.0	13.0	1.0	1,657.0	1,657.0	16.7	18.4	16,953.7	16,579.2
Missouri	1,579.0	1,567.9	17,650.0	18,391.5	657.0	657.0	2.2	2.2	1,190.0	1,190.0	0.0	0.0	21,078.2	21,808.6
Nebraska	2,011.8	1,724.6	6,202.0	6,148.4	0.0	0.0	0.0	0.0	770.0	770.0	0.0	0.0	8,983.8	8,643.0
North Dakota	3,741.6	3,592.8	4,633.6	4,635.6	0.0	0.0	0.0	0.0	0.0	0.0	5.3	5.3	8,380.5	8,233.7
South Dakota	2,476.8	2,436.8	1,691.3	1,691.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	4,168.9	4,128.6
South Atlantic	20,104.1	18,369.8	161,659.0	159,357.6	7,905.2	7,905.2	76.5	80.5	24,706.6	24,602.6	408.7	446.7	214,860.1	210,762.4
Delaware	47.5	46.1	3,330.4	3,331.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,377.9	3,377.5
District of Columbia	23.0	23.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	32.0
Florida	2,681.9	1,865.2	50,688.1	53,176.0	0.0	0.0	14.0	0.0	3,626.0	3,572.0	348.7	348.7	57,358.7	58,961.9
Georgia	4,013.8	3,927.5	27,050.6	26,973.7	1,862.2	1,862.2	1.0	1.0	4,061.0	4,061.0	0.0	44.0	36,988.6	36,869.4
Maryland	1,191.4	1,090.1	11,847.1	10,278.7	0.0	0.0	7.0	13.0	1,725.8	1,707.8	6.0	0.0	14,777.3	13,089.6
North Carolina	6,767.0	6,133.3	22,120.5	21,644.3	86.0	86.0	1.0	1.0	5,149.6	5,117.6	54.0	54.0	34,178.1	33,036.2
South Carolina	2,201.5	2,152.4	12,164.3	11,435.2	2,716.0	2,716.0	4.0	0.0	6,576.2	6,576.2	0.0	0.0	23,662.0	22,879.8
Virginia	2,150.9	2,105.1	20,674.9	18,746.0	3,241.0	3,241.0	0.0	0.0	3,568.0	3,568.0	0.0	0.0	29,634.8	27,660.1
West Virginia	1,027.1	1,027.1	13,774.1	13,763.3	0.0	0.0	49.5	65.5	0.0	0.0	0.0	0.0	14,850.7	14,855.9
East South Central	8,814.5	8,769.9	64,592.7	65,250.8	1,616.3	1,616.3	1.0	1.0	11,294.1	10,984.1	1.4	1.4	86,320.0	86,623.5
Alabama	4,086.4	4,156.0	20,660.4	20,507.4	0.0	0.0	1.0	1.0	5,370.4	5,060.4	0.0	0.0	30,118.2	29,724.8
Kentucky	1,245.4	1,245.4	18,874.3	18,874.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20,119.7	20,119.7
Mississippi	463.0	435.3	12,867.7	13,989.9	0.0	0.0	0.0	0.0	1,401.0	1,401.0	1.4	1.4	14,733.1	15,827.6
Tennessee	3,019.7	2,933.2	12,190.3	11,879.2	1,616.3	1,616.3	0.0	0.0	4,522.7	4,522.7	0.0	0.0	21,349.0	20,951.4
West South Central	38,640.3	35,070.8	139,035.5	143,692.2	286.0	286.0	99.8	78.5	8,910.7	8,910.7	512.5	512.7	187,484.8	188,550.9
Arkansas	1,697.1	1,613.3	11,219.7	11,183.0	28.0	28.0	0.0	0.0	1,817.8	1,817.8	0.0	0.0	14,762.6	14,642.1
Louisiana	683.2	683.2	20,056.9	20,600.7	0.0	0.0	0.5	0.5	2,132.9	2,132.9	288.5	288.7	23,162.0	23,706.0
Oklahoma	9,041.0	7,856.0	18,102.0	18,577.0	258.0	258.0	0.0	0.0	0.0	0.0	0.0	0.0	27,401.0	26,691.0
Texas	27,219.0	24,918.3	89,656.9	93,331.5	0.0	0.0	99.3	78.0	4,960.0	4,960.0	224.0	224.0	122,159.2	123,511.8
Mountain	27,308.9	26,098.8	62,239.7	62,321.3	778.8	778.8	40.6	23.6	3,937.0	3,937.0	123.0	126.3	94,428.0	93,285.8
Arizona	5,091.1	5,014.4	19,395.3	19,407.3	216.3	216.3	32.0	20.0	3,937.0	3,937.0	0.0	0.0	28,671.7	28,595.0
Colorado	4,950.1	4,283.1	11,063.0	11,161.2	562.5	562.5	5.0	1.0	0.0	0.0	9.1	9.3	16,589.7	16,017.1
Idaho	4,068.5	4,011.9	1,127.1	1,127.6	0.0	0.0	0.0	0.0	0.0	0.0	14.8	14.8	5,210.4	5,154.3
Montana	3,571.2	3,446.3	2,744.9	2,740.4	0.0	0.0	0.0	0.0	0.0	0.0	40.0	44.0	6,356.1	6,230.7
Nevada	3,665.4	3,572.5	7,821.6	7,791.6	0.0	0.0	0.0	0.0	0.0	0.0	6.5	6.5	11,493.5	11,370.6
New Mexico	2,473.7	2,375.7	5,953.3	5,966.8	0.0	0.0	3.6	2.6	0.0	0.0	0.0	0.0	8,430.6	8,345.1
Utah	1,602.5	1,600.5	7,360.2	7,348.2	0.0	0.0	0.0	0.0	0.0	0.0	40.2	40.2	9,002.9	8,988.9
Wyoming	1,886.4	1,794.4	6,774.3	6,778.2	0.0	0.0	0.0	0.0	0.0	0.0	12.4	11.5	8,673.1	8,584.1
Pacific Contiguous	67,907.2	66,701.5	47,614.6	49,262.9	4,225.9	4,225.9	242.8	171.9	3,403.0	3,417.0	106.3	106.3	123,499.8	123,885.5
California	30,889.7	29,810.9	38,546.7	40,185.0	3,911.9	3,911.9	231.6	159.5	2,240.0	2,240.0	106.3	106.3	75,926.2	76,413.6
Oregon	12,259.2	12,191.8	4,326.1	4,318.1	0.0	0.0	5.0	5.0	0.0	0.0	0.0	0.0	16,590.3	16,514.9
Washington	24,758.3	24,698.8	4,741.8	4,759.8	314.0	314.0	6.2	7.4	1,163.0	1,177.0	0.0	0.0	30,983.3	30,957.0
Pacific Noncontiguous	1,203.7	1,128.3	4,218.4	4,222.6	0.0	0.0	107.2	88.7	0.0	0.0	26.6	26.6	5,555.9	5,466.2
Alaska	538.2	538.2	2,160.1	2,164.3	0.0	0.0	46.2	46.2	0.0	0.0	0.0	0.0	2,744.5	2,748.7
Hawaii	665.5	590.1	2,058.3	2,058.3	0.0	0.0	61.0	42.5	0.0	0.0	26.6	26.6	2,811.4	2,717.5
U.S. Total	222,345.4	210,802.6	747,784.6	748,241.4	22,830.2	22,810.4	899.1	711.9	99,432.9	99,628.9	1,447.6	2,174.4	1,094,739.8	1,084,369.6

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 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, 2018 and 2017 (Megawatts)

	Summer Capacity at Utility Scale Facilities														Small Scale Capacity		Capacity From Utility and Small Scale Facilities			
Census Division and State	Wind		Solar Photovoltaic		Solar Thermal		Conventional Hydroelectric		Biomass Sources		Geothermal		Total Renewable Sources		Estimated Solar Photovoltaic		Estimated Total Solar Photovoltaic		Estimated Total Solar	
	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	1,403.8	1,400.6	961.1	776.8	0.0	0.0	1,959.5	1,960.7	1,537.7	1,530.2	0.0	0.0	5,862.1	5,668.3	2,309.0	1,792.0	3,270.1	2,568.8	3,270.1	2,568.8
Connecticut	1.0	1.0	86.8	34.5	0.0	0.0	122.2	122.2	202.6	203.5	0.0	0.0	412.6	361.2	416.8	332.6	503.6	367.1	503.6	367.1
Maine	921.6	921.6	5.6	5.6	0.0	0.0	732.4	732.4	686.9	686.0	0.0	0.0	2,346.5	2,345.6	43.6	32.0	49.2	37.6	49.2	37.6
Massachusetts	96.1	92.9	736.6	643.8	0.0	0.0	267.0	267.4	285.3	285.3	0.0	0.0	1,385.0	1,289.4	1,568.6	1,215.4	2,305.2	1,859.2	2,305.2	1,859.2
New Hampshire	183.1	183.1	0.0	0.0	0.0	0.0	504.0	504.8	241.0	241.0	0.0	0.0	928.1	928.9	83.7	70.3	83.7	70.3	83.7	70.3
Rhode Island	51.8	51.8	31.6	18.7	0.0	0.0	2.7	2.7	40.1	40.1	0.0	0.0	126.2	113.3	93.5	51.4	125.1	70.1	125.1	70.1
Vermont	150.2	150.2	100.5	74.2	0.0	0.0	331.2	331.2	81.8	74.3	0.0	0.0	663.7	629.9	102.8	90.3	203.3	164.5	203.3	164.5
Middle Atlantic	3,363.3	3,205.6	1,087.1	879.4	0.0	0.0	5,473.2	5,466.2	1,278.4	1,304.8	0.0	0.0	11,202.0	10,856.0	2,997.6	2,529.8	4,084.7	3,409.2	4,084.7	3,409.2
New Jersey	7.6	7.6	764.8	664.7	0.0	0.0	12.3	12.3	227.3	227.3	0.0	0.0	1,012.0	911.9	1,448.5	1,271.0	2,213.3	1,935.7	2,213.3	1,935.7
New York	1,985.7	1,826.2	264.5	162.9	0.0	0.0	4,561.3	4,554.3	524.1	524.1	0.0	0.0	7,335.6	7,067.5	1,227.1	983.5	1,491.6	1,146.4	1,491.6	1,146.4
Pennsylvania	1,370.0	1,371.8	57.8	51.8	0.0	0.0	899.6	899.6	527.0	553.4	0.0	0.0	2,854.4	2,876.6	322.0	275.3	379.8	327.1	379.8	327.1
East North Central	9,985.9	9,096.7	462.5	392.3	0.0	0.0	859.9	857.3	1,252.9	1,284.8	0.0	0.0	12,561.2	11,631.1	392.0	293.7	854.5	686.0	854.5	686.0
Illinois	4,618.8	4,261.8	40.6	34.8	0.0	0.0	34.1	34.1	88.8	117.2	0.0	0.0	4,782.3	4,447.9	78.7	49.9	119.3	84.7	119.3	84.7
Indiana	2,309.8	2,109.4	216.2	196.7	0.0	0.0	60.4	60.4	70.8	76.3	0.0	0.0	2,657.2	2,442.8	73.9	45.6	290.1	242.3	290.1	242.3
Michigan	1,900.5	1,691.8	98.2	73.0	0.0	0.0	269.9	266.9	562.0	559.1	0.0	0.0	2,830.6	2,590.8	62.7	52.8	160.9	125.8	160.9	125.8
Ohio	718.4	604.4	83.6	69.4	0.0	0.0	101.9	101.9	149.8	147.4	0.0	0.0	1,053.7	923.1	119.5	100.6	203.1	170.0	203.1	170.0
Wisconsin	438.4	429.3	23.9	18.4	0.0	0.0	393.6	394.0	381.5	384.8	0.0	0.0	1,237.4	1,226.5	57.2	44.8	81.1	63.2	81.1	63.2
West North Central	24,120.4	22,078.6	828.1	580.4	0.0	0.0	3,293.7	3,291.7	499.2	557.4	0.0	0.0	28,741.4	26,508.1	331.1	262.2	1,159.2	842.6	1,159.2	842.6
Iowa	8,256.6	6,972.2	8.9	7.7	0.0	0.0	146.4	146.4	21.4	21.4	0.0	0.0	8,433.3	7,147.7	92.7	70.0	101.6	77.7	101.6	77.7
Kansas	5,359.2	5,116.0	4.2	4.2	0.0	0.0	7.0	7.0	9.0	9.0	0.0	0.0	5,379.4	5,136.2	18.6	11.2	22.8	15.4	22.8	15.4
Minnesota	3,750.5	3,707.9	733.9	503.3	0.0	0.0	205.9	205.9	429.2	485.0	0.0	0.0	5,119.5	4,902.1	60.9	45.7	794.8	549.0	794.8	549.0
Missouri	954.3	954.3	62.1	48.6	0.0	0.0	548.5	548.5	14.1	16.5	0.0	0.0	1,579.0	1,567.9	150.4	130.4	212.5	179.0	212.5	179.0
Nebraska	1,700.2	1,417.4	18.0	15.6	0.0	0.0	277.9	275.9	15.7	15.7	0.0	0.0	2,011.8	1,724.6	7.5	4.2	25.5	19.8	25.5	19.8
North Dakota	3,221.8	3,073.0	0.0	0.0	0.0	0.0	510.0	510.0	9.8	9.8	0.0	0.0	3,741.6	3,592.8	0.4	0.2	0.4	0.2	0.4	0.2
South Dakota	877.8	837.8	1.0	1.0	0.0	0.0	1,598.0	1,598.0	0.0	0.0	0.0	0.0	2,476.8	2,436.8	0.6	0.5	1.6	1.5	1.6	1.5
South Atlantic	1,086.3	1,086.3	7,463.1	5,644.2	0.0	0.0	7,224.4	7,268.2	4,330.3	4,371.1	0.0	0.0	20,104.1	18,369.8	1,691.3	1,355.1	9,154.4	6,999.3	9,154.4	6,999.3
Delaware	2.0	2.0	33.3	31.9	0.0	0.0	0.0	0.0	12.2	12.2	0.0	0.0	47.5	46.1	78.9	69.5	112.2	101.4	112.2	101.4
District of Columbia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	23.0	0.0	0.0	23.0	23.0	50.9	37.7	50.9	37.7	50.9	37.7
Florida	0.0	0.0	1,399.5	513.9	0.0	0.0	54.5	54.5	1,227.9	1,296.8	0.0	0.0	2,681.9	1,865.2	281.7	192.3	1,681.2	706.2	1,681.2	706.2
Georgia	0.0	0.0	1,017.2	974.9	0.0	0.0	2,047.2	2,047.2	949.4	905.4	0.0	0.0	4,013.8	3,927.5	166.7	NM	1,183.9	NM	1,183.9	NM
Maryland	190.0	190.0	271.4	168.1	0.0	0.0	590.0	590.0	140.0	142.0	0.0	0.0	1,191.4	1,090.1	709.8	617.0	981.2	785.1	981.2	785.1
North Carolina	208.0	208.0	3,998.1	3,355.0	0.0	0.0	2,002.0	2,002.0	558.9	568.3	0.0	0.0	6,767.0	6,133.3	140.9	114.9	4,139.0	3,469.9	4,139.0	3,469.9
South Carolina	0.0	0.0	351.1	253.7	0.0	0.0	1,323.9	1,367.7	526.5	531.0	0.0	0.0	2,201.5	2,152.4	194.9	123.7	546.0	377.4	546.0	377.4
Virginia	0.0	0.0	392.5	346.7	0.0	0.0	866.0	866.0	892.4	892.4	0.0	0.0	2,150.9	2,105.1	60.7	46.5	453.2	393.2	453.2	393.2
West Virginia	686.3	686.3	0.0	0.0	0.0	0.0	340.8	340.8	0.0	0.0	0.0	0.0	1,027.1	1,027.1	6.8	5.8	6.8	5.8	6.8	5.8
East South Central	29.1	29.1	558.8	455.5	0.0	0.0	7,055.5	7,056.3	1,171.1	1,229.0	0.0	0.0	8,814.5	8,769.9	94.0	87.1	652.8	542.6	652.8	542.6
Alabama	0.0	0.0	194.1	179.3	0.0	0.0	3,292.0	3,290.8	600.3	685.9	0.0	0.0	4,086.4	4,156.0	NM	NM	NM	NM	NM	NM
Kentucky	0.0	0.0	26.3	26.3	0.0	0.0	1,146.9	1,146.9	72.2	72.2	0.0	0.0	1,245.4	1,245.4	23.2	17.0	49.5	43.3	49.5	43.3
Mississippi	0.0	0.0	160.6	160.6	0.0	0.0	0.0	0.0	302.4	274.7	0.0	0.0	463.0	435.3	6.9	10.3	167.5	170.9	167.5	170.9
Tennessee	29.1	29.1	177.8	89.3	0.0	0.0	2,616.6	2,618.6	196.2	196.2	0.0	0.0	3,019.7	2,933.2	56.7	54.6	234.5	143.9	234.5	143.9
West South Central	32,257.9	29,480.9	2,080.4	1,280.8	0.0	0.0	2,991.4	2,987.5	1,310.6	1,321.6	0.0	0.0	38,640.3	35,070.8	636.9	441.5	2,717.3	1,722.3	2,717.3	1,722.3
Arkansas	0.0	0.0	100.0	19.0	0.0	0.0	1,265.8	1,263.9	331.3	330.4	0.0	0.0	1,697.1	1,613.3	15.3	7.3	115.3	26.3	115.3	26.3
Louisiana	0.0	0.0	1.1	1.1	0.0	0.0	192.0	192.0	490.1	490.1	0.0	0.0	683.2	683.2	139.7	121.2	140.8	122.3	140.8	122.3
Oklahoma	8,070.7	6,897.7	30.5	20.5	0.0	0.0	863.6	861.6	76.2	76.2	0.0	0.0	9,041.0	7,856.0	7.3	3.9	37.8	24.4	37.8	24.4
Texas	24,187.2	22,583.2	1,948.8	1,240.2	0.0	0.0	670.0	670.0	413.0	424.9	0.0	0.0	27,219.0	24,918.3	474.7	309.1	2,423.5	1,549.3	2,423.5	1,549.3
Mountain	9,565.8	8,812.5	5,799.3	5,480.9	473.9	473.9	10,650.0	10,574.4	174.3	174.3	645.6	582.8	27,308.9	26,098.8	2,327.7	1,957.8	8,127.0	7,438.7	8,600.9	7,912.6
Arizona	267.3	267.3	1,776.8	1,700.1	295.4	295.4	2,720.9	2,720.9	30.											

Table 4.7.C. Net Summer Capacity of Utility Scale Units Using Primarily Fossil Fuels and by State, 2018 and 2017 (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 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	13,675.0	11,884.4	1,056.6	1,118.8	1,112.6	1,605.7	917.3	917.3	0.0	0.0	6,262.6	5,708.5	0.0	0.0	23,024.1	21,234.7
Connecticut	3,442.7	2,356.9	563.0	477.6	875.0	872.4	383.4	383.4	0.0	0.0	2,026.5	2,035.1	0.0	0.0	7,290.6	6,125.4
Maine	1,284.3	1,250.0	144.3	297.1	12.5	108.5	0.0	0.0	0.0	0.0	1,037.7	880.9	0.0	0.0	2,478.8	2,536.5
Massachusetts	5,902.8	5,259.3	333.1	333.5	199.7	199.7	0.0	0.0	0.0	0.0	2,599.2	2,588.4	0.0	0.0	9,034.8	8,380.9
New Hampshire	1,258.0	1,231.0	3.8	3.8	0.0	400.2	533.9	533.9	0.0	0.0	494.2	94.0	0.0	0.0	2,289.9	2,262.9
Rhode Island	1,787.2	1,787.2	12.4	6.8	25.4	24.9	0.0	0.0	0.0	0.0	7.1	12.2	0.0	0.0	1,832.1	1,831.1
Vermont	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.9	97.9	0.0	0.0	97.9	97.9
Middle Atlantic	31,831.4	26,068.9	7,909.1	7,682.3	14,505.4	15,129.1	13,776.7	13,530.2	11.6	78.6	5,499.1	5,398.7	130.7	129.2	73,664.0	68,017.0
New Jersey	8,529.9	8,158.0	2,826.3	2,845.0	46.9	497.7	609.0	609.0	11.6	11.6	385.0	226.2	29.0	23.4	12,437.7	12,370.9
New York	8,922.6	7,977.3	3,173.0	3,157.0	9,665.2	9,688.5	1,631.5	1,640.2	0.0	0.0	3,558.8	3,563.8	0.0	0.0	26,951.1	26,026.8
Pennsylvania	14,378.9	9,933.6	1,909.8	1,680.3	4,793.3	4,942.9	11,536.2	11,281.0	0.0	67.0	1,555.3	1,608.7	101.7	105.8	34,275.2	29,619.3
East North Central	21,661.3	18,862.0	26,654.4	26,579.8	5,563.6	4,212.9	54,908.0	60,678.3	247.6	247.6	2,452.6	2,643.3	1,092.9	1,092.9	112,580.4	114,316.8
Illinois	3,580.2	3,580.2	10,504.8	10,385.3	1,633.6	288.9	12,626.0	13,966.0	0.0	0.0	674.2	674.2	36.5	36.5	29,055.3	28,931.1
Indiana	3,836.0	2,406.0	3,353.4	3,405.8	730.0	729.1	15,291.4	15,761.4	0.0	0.0	98.3	237.8	619.3	619.3	23,928.4	23,159.4
Michigan	4,413.6	4,421.0	3,874.0	3,970.8	2,375.5	2,394.0	9,190.4	9,216.7	47.2	47.2	463.5	490.4	250.0	250.0	20,614.2	20,790.1
Ohio	7,020.4	5,704.0	5,559.2	5,446.1	185.1	189.2	12,246.0	14,605.4	142.0	142.0	581.1	636.5	187.1	187.1	25,920.9	26,910.3
Wisconsin	2,811.1	2,750.8	3,363.0	3,371.8	639.4	611.7	5,554.2	7,128.8	58.4	58.4	635.5	604.4	0.0	0.0	13,061.6	14,525.9
West North Central	6,640.9	6,633.1	11,737.3	11,523.4	3,807.2	4,378.2	33,054.1	34,116.0	39.5	32.0	3,868.8	3,874.4	8.4	8.4	59,156.2	60,565.5
Iowa	1,779.8	1,772.6	1,260.4	1,265.7	540.5	532.8	5,371.7	5,497.9	39.5	32.0	814.5	820.7	0.0	0.0	9,806.4	9,921.7
Kansas	266.0	266.0	2,156.8	2,148.3	1,367.9	2,096.7	4,670.2	4,714.2	0.0	0.0	564.5	550.6	0.0	0.0	9,025.4	9,775.8
Minnesota	2,172.0	2,172.0	2,667.9	2,456.4	381.6	275.8	4,157.9	4,309.4	0.0	0.0	768.1	787.1	0.0	0.0	10,147.5	10,000.7
Missouri	1,794.9	1,789.9	3,400.6	3,399.6	871.1	836.1	10,470.9	11,260.8	0.0	0.0	1,112.5	1,105.1	0.0	0.0	17,650.0	18,391.5
Nebraska	338.2	342.6	1,149.0	1,150.8	525.8	516.5	3,867.0	3,817.3	0.0	0.0	322.0	321.2	0.0	0.0	6,202.0	6,148.4
North Dakota	0.0	0.0	408.0	408.0	111.6	111.6	4,042.4	4,042.4	0.0	0.0	63.2	65.2	8.4	8.4	4,633.6	4,635.6
South Dakota	290.0	290.0	694.6	694.6	8.7	8.7	474.0	474.0	0.0	0.0	224.0	224.5	0.0	0.0	1,691.3	1,691.8
South Atlantic	59,181.2	53,188.3	31,914.2	31,786.6	7,334.2	7,308.6	53,994.3	56,389.3	142.8	142.8	8,957.3	10,407.0	135.0	135.0	161,659.0	159,357.6
Delaware	1,511.0	1,512.0	317.2	317.2	843.1	843.1	410.0	410.0	0.0	0.0	114.1	114.1	135.0	135.0	3,330.4	3,331.4
District of Columbia	0.0	0.0	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	9.0
Florida	29,345.7	27,953.7	7,759.2	7,890.1	2,419.2	2,481.2	7,804.0	9,822.0	59.0	59.0	3,301.0	4,970.0	0.0	0.0	50,688.1	53,176.0
Georgia	7,989.0	7,963.9	7,791.0	7,787.2	842.9	832.9	9,398.5	9,360.5	83.8	83.8	945.4	945.4	0.0	0.0	27,050.6	26,973.7
Maryland	2,849.1	976.0	1,899.9	1,957.6	1,494.2	1,414.2	4,327.0	4,712.0	0.0	0.0	1,276.9	1,218.9	0.0	0.0	11,847.1	10,278.7
North Carolina	5,068.0	4,724.8	6,045.1	6,045.1	0.0	0.0	10,504.8	10,536.8	0.0	0.0	502.6	337.6	0.0	0.0	22,120.5	21,644.3
South Carolina	3,185.0	2,399.0	2,757.9	2,814.8	546.0	546.0	5,212.0	5,212.0	0.0	0.0	463.4	463.4	0.0	0.0	12,164.3	11,435.2
Virginia	9,233.4	7,658.9	4,245.3	3,894.3	1,073.3	1,068.2	3,780.0	3,778.0	0.0	0.0	2,342.9	2,346.6	0.0	0.0	20,674.9	18,746.0
West Virginia	0.0	0.0	1,089.6	1,071.3	115.5	123.0	12,558.0	12,558.0	0.0	0.0	11.0	11.0	0.0	0.0	13,774.1	13,763.3
East South Central	21,746.2	20,632.1	12,626.1	12,646.9	4,592.8	6,053.8	25,490.8	25,756.2	0.0	0.0	117.0	142.0	19.8	19.8	64,592.7	65,250.8
Alabama	9,699.0	9,618.4	2,532.2	2,532.2	2,028.1	2,791.3	6,338.7	5,503.1	0.0	0.0	42.6	42.6	19.8	19.8	20,660.4	20,507.4
Kentucky	1,763.0	1,763.0	4,976.6	4,976.6	260.0	260.0	11,862.8	11,862.8	0.0	0.0	11.9	11.9	0.0	0.0	18,874.3	18,874.3
Mississippi	7,829.1	7,847.7	1,336.8	1,357.6	2,238.5	2,936.3	1,444.0	1,804.0	0.0	0.0	19.3	44.3	0.0	0.0	12,867.7	13,989.9
Tennessee	2,455.1	1,403.0	3,780.5	3,780.5	66.2	66.2	5,845.3	6,586.3	0.0	0.0	43.2	43.2	0.0	0.0	12,190.3	11,879.2
West South Central	60,239.5	60,410.1	14,419.5	13,977.4	30,856.3	31,660.5	31,564.1	35,856.2	954.7	957.9	175.6	174.8	825.8	655.3	139,035.5	143,692.2
Arkansas	4,603.4	4,566.0	702.8	702.8	796.0	802.0	5,105.3	5,100.0	0.0	0.0	12.2	12.2	0.0	0.0	11,219.7	11,183.0
Louisiana	7,474.6	7,537.0	2,349.6	2,357.9	6,057.6	6,528.4	2,833.7	2,832.6	890.9	894.1	43.1	43.3	407.4	407.4	20,056.9	20,600.7
Oklahoma	7,263.6	7,247.6	1,686.9	1,684.9	4,773.6	5,235.5	4,303.5	4,334.6	0.0	0.0	74.4	74.4	0.0	0.0	18,102.0	18,577.0
Texas	40,897.9	41,059.5	9,680.2	9,231.8	19,229.1	19,094.6	19,321.6	23,589.0	63.8	63.8	45.9	44.9	418.4	247.9	89,656.9	93,331.5
Mountain	22,510.8	22,483.8	8,625.6	8,638.9	3,832.4	3,693.9	26,765.5	26,989.0	52.0	52.0	349.9	356.3	103.5	107.4	62,239.7	62,321.3
Arizona	9,879.6	9,891.6	2,367.6	2,367.6	1,478.6	1,303.6	5,579.0	5,754.0	0.0	0.0	90.5	90.5	0.0	0.0	19,395.3	19,407.3
Colorado	3,249.5	3,240.5	2,568.1	2,572.3	639.0	681.0	4,440.0	4,499.0	0.0	0.0	166.4	168.4	0.0	0.0	11,063.0	11,161.2
Idaho	547.7	547.7	552.0	552.0	13.5	14.0	8.5	8.5	0.0	0.0	5.4	5.4	0.0	0.0	1,127.1	1,127.6
Montana	0.0	0.0	321.6	321.6	72.2	72.2	2,297.6	2,293.1	52.0	52.0	0.0	0.0	1.5	1.5	2,744.9	2,740.4
Nevada	5,445.0	5,415.0	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	7,791.6
New Mexico	1,465.0	1,465.0	956.9	966.0	843.4	849.4	2,640.0	2,634.0	0.0	0.0	48.0	52.4	0.0	0.0	5,953.3	5,966.8
Utah	1,830.0	1,830.0	520.2	520.2	328.2	316.2	4,654.0	4,654.0	0.0	0.0	27.8	27.8	0.0	0.0	7,360.2	7,348.2
Wyoming	94.0	94.0	153.6	153.6	12.9	12.9	6,406.0	6,406.0	0.0	0.0	5.8	5.8	102.0	105.9	6,774.3	6,778.2
Pacific Contiguous	25,897.1	26,030.1	12,066.7	11,680.4	6,959.0	8,861.1	1,982.0	1,982.0	17.0	17.0	471.4	470.9	221.4	221.4	47,614.6	49,262.9
California	19,878.6	20,001.6	11,213.5	10,827.2	6,703.0	8,605.1	57.0	57.0	17.0	17.0	456.2	455.7	221.4	221.4	38,546.7	40,185.0
Oregon	3,382.9	3,374.9	133.8	133.8	224.4	224.4	585.0	585.0	0.0	0.0	0.0	0.0	0.0	0.0	4,326.1	4,318.1
Washington	2,635.6	2,653.6	719.4	719.4	31.6	31.6	1,340.0	1,340.0	0.0	0.0	15.2	15.2	0.0	0.0	4,741.8	4,759.8
Pacific Noncontiguous	479.2	479.2	626.3	626.3	175.0	175.0	332.8	332.8	0.0	0.0	2,598.7	2,602.9	6.4	6.4	4,218.4	4,222.6
Alaska	479.2	479.2	626.3	626.3	175.0	175.0	152.8	152.8	0.0	0.0	726.8	731.0	0.0	0.0	2,160.1	2,164.3
Hawaii	0.0	0.0	0.0	0.0	0.0	0.0	180.0	180.0	0.0	0.0	1,871.9	1,871.9	6.4	6.4	2,058.3	2,058.3
U.S. Total	263,862.6	246,672.0	127,635.8	126,260.8	78,738.5	83,078.8	242,785.6	256,547.3	1,465.2	1,527.9	30,753.0	31,778.8	2,543.9	2,375.8	747,784.6	748,241.4

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																
2008	311,516.5	72.4%	193,228.9	40.3%	114,630.8	7.6%	85,371.3	12.1%	2,308.9	7.4%	31,450.4	16.0%	19,951.8	1.6%	4,986.8	2.3%
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%
Year 2016																
January	274,372.3	55.7%	233,566.2	56.3%	124,808.2	7.7%	83,143.3	7.6%	3,558.7	11.1%	13,993.7	10.9%	15,322.1	0.8%	5,092.1	2.8%
February	274,372.3	48.6%	233,566.2	53.6%	124,757.5	7.7%	82,515.0	7.8%	3,558.7	10.2%	13,993.7	11.4%	15,271.1	0.9%	5,090.7	2.5%
March	273,635.3	36.1%	233,582.2	50.3%	124,669.1	9.6%	82,380.0	10.2%	3,551.7	10.3%	13,993.7	9.7%	15,180.1	1.2%	5,086.5	2.0%
April	269,271.8	37.7%	233,642.2	47.7%	124,665.0	10.7%	82,362.0	11.7%	3,615.8	10.7%	13,993.7	10.1%	15,180.1	1.0%	5,082.7	1.9%
May	268,558.2	41.3%	236,392.0	52.3%	124,663.4	10.1%	82,288.0	12.1%	3,661.6	11.0%	13,993.7	12.2%	15,180.1	1.3%	5,074.7	2.2%
June	268,296.7	60.7%	236,607.8	63.4%	125,078.8	12.7%	81,442.7	16.9%	3,701.4	13.2%	13,993.7	14.2%	15,180.1	1.4%	5,084.4	1.9%
July	268,273.9	69.0%	237,049.8	67.8%	125,281.4	16.6%	81,350.7	21.9%	3,716.0	14.6%	13,993.7	17.6%	15,166.1	2.2%	5,090.4	1.9%
August	268,118.9	68.6%	238,914.3	70.2%	125,687.7	16.7%	81,350.7	20.1%	3,771.8	15.3%	13,993.7	15.7%	15,104.1	2.7%	5,091.5	2.1%
September	267,518.9	59.8%	238,826.1	60.7%	125,688.7	12.3%	81,301.0	14.2%	3,773.3	12.3%	13,993.7	13.5%	15,104.1	1.4%	5,091.9	2.0%
October	267,418.9	50.3%	238,301.6	47.8%	125,818.7	10.4%	79,598.4	11.3%	3,767.2	10.0%	13,993.7	9.6%	15,088.1	1.1%	5,081.0	2.2%
November	267,408.9	45.7%	238,335.8	46.9%	125,818.7	9.4%	79,480.0	6.9%	3,767.2	9.6%	13,993.7	10.9%	15,088.1	0.8%	5,071.0	2.6%
December	266,619.9	60.4%	238,397.0	47.6%	124,839.7	7.8%	77,563.0	5.9%	3,764.4	9.9%	13,993.7	10.9%	14,517.6	0.7%	5,057.4	3.5%
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%

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

	Geothermal		Hydroelectric		Nuclear		Other Biomass		Other Gas		Solar				Wind		Wood	
Year/Month											Photovoltaic		Thermal					
	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	Time Adjusted Capacity	Capacity Factor
Annual Data																		
2008	2,225.4	74.3%	77,925.2	37.1%	100,754.9	91.1%	4,112.4	64.8%	1,882.0	46.8%	42.8	19.2%	507.5	19.5%	19,275.3	31.7%	6,970.0	63.6%
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%
Year 2016																		
January	2,516.6	71.1%	79,588.0	43.2%	98,920.9	98.6%	5,074.6	61.6%	2,460.1	69.9%	12,223.1	15.1%	1,757.9	6.8%	72,600.5	33.9%	8,998.3	61.4%
February	2,516.6	71.0%	79,677.6	43.5%	98,920.9	95.3%	5,083.9	61.2%	2,460.1	70.5%	12,470.5	22.8%	1,757.9	19.5%	73,061.4	39.6%	8,996.9	61.7%
March	2,516.6	70.2%	79,734.6	46.2%	98,920.9	89.9%	5,080.0	60.9%	2,460.1	66.9%	12,611.2	24.7%	1,757.9	19.6%	73,059.9	40.1%	8,989.1	58.2%
April	2,516.6	66.7%	79,763.9	45.0%	98,920.9	88.1%	5,073.5	62.9%	2,460.1	67.7%	12,822.0	27.1%	1,757.9	20.9%	73,394.7	39.3%	8,986.1	52.4%
May	2,516.6	71.7%	79,801.3	42.9%	98,920.9	90.5%	5,104.2	65.1%	2,460.1	65.5%	13,298.0	30.0%	1,757.9	28.8%	73,582.3	34.1%	8,988.1	54.0%
June	2,516.6	69.1%	79,802.5	40.4%	98,920.9	94.2%	5,105.4	63.8%	2,460.1	62.4%	13,419.8	30.2%	1,757.9	33.5%	73,854.8	30.5%	8,988.1	58.4%
July	2,516.6	70.0%	79,839.1	36.0%	100,042.9	94.5%	5,111.9	63.4%	2,460.1	60.9%	13,635.3	31.5%	1,757.9	36.9%	74,276.5	31.8%	8,988.1	60.2%
August	2,516.6	70.7%	79,866.5	32.9%	100,042.9	96.1%	5,111.0	63.3%	2,456.9	62.3%	14,360.4	31.6%	1,757.9	29.2%	74,700.1	24.4%	8,970.1	61.4%
September	2,516.6	73.2%	79,866.3	28.5%	100,042.9	90.9%	5,112.2	61.2%	2,456.9	62.2%	15,298.1	28.4%	1,757.9	30.2%	74,721.5	30.4%	8,970.1	58.2%
October	2,516.6	72.3%	79,904.3	29.2%	99,564.8	81.7%	5,122.7	57.8%	2,456.9	59.3%	16,064.3	23.9%	1,757.9	19.0%	74,844.5	36.3%	8,970.1	54.0%
November	2,516.6	75.3%	79,910.8	32.7%	99,564.8	90.9%	5,125.6	65.0%	2,456.9	64.4%	16,477.2	20.3%	1,757.9	14.4%	75,455.5	35.3%	8,977.2	58.6%
December	2,516.6	77.7%	79,912.8	37.9%	99,564.8	96.8%	5,088.8	65.7%	2,456.9	66.4%	17,192.0	16.2%	1,757.9	7.0%	76,354.3	38.8%	8,936.1	61.7%
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%

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%
Year 2016				
January	364.9	3.8%	22,683.7	9.2%
February	370.9	3.6%	22,705.7	8.0%
March	391.7	3.9%	22,705.7	8.4%
April	398.7	4.0%	22,705.7	8.6%
May	408.7	3.9%	22,778.7	10.9%
June	419.1	4.0%	22,778.7	15.6%
July	439.1	3.9%	22,778.7	15.9%
August	439.1	4.0%	22,778.7	16.4%
September	440.1	3.7%	22,778.7	13.3%
October	442.1	3.7%	22,778.7	10.1%
November	480.1	3.5%	22,778.7	8.6%
December	480.1	3.3%	22,778.7	9.6%
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%

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, 2008 through 2015 (Table Discontinued)

	Capacity (MW)										
	Internal Combustion	Combustion Turbine	Steam Turbine	Hydro	Wind	Photovoltaic	Storage	Other	Wind and Other	Total	Number of Generators
Year											
Distributed Generators											
2008	5,112.0	1,949.0	3,060.0	1,154.0	--	--	--	--	1,588.0	12,863.0	9,591
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											
2008	9,335.0	86.0	248.0	34.0	--	--	--	--	70.0	9,773.0	12,262
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											
2008	14,447.0	2,035.0	3,308.0	1,188.0	--	--	--	--	1,658.0	22,636.0	21,853
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 2018

Generators by Technology and Sector						
Year	Residential	Commercial	Industrial	Transportation	Direct Connected	Total
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
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
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
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
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
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
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
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
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
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
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

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, 2008 through 2018

Year	Capacity (MW)					Customers				
	Residential	Commercial	Industrial	Transportation	Total	Residential	Commercial	Industrial	Transportation	Total
Historical Data										
2008	N/A	N/A	N/A	N/A	N/A	64,400	5,305	304	--	70,009
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
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
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
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
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
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
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

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, 2018
(Megawatts, Percent)

		Fuel-Switchable Part of Total			
Producer Type	Total Net Summer Capacity of All Generators Reporting Natural Gas as the Primary Fuel	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	241,477.0	81,594.4	33.8%	78,295.4	16,825.2
Independent Power Producers, Non-Combined Heat and Power Plants	186,542.1	43,157.9	23.1%	40,016.0	7,137.6
Independent Power Producers, Combined Heat and Power Plants	25,658.1	4,131.2	16.1%	3,959.4	297.9
Electric Power Sector Subtotal	453,677.2	128,883.5	28.4%	122,270.8	24,260.7
Commercial Sector	2,157.6	920.6	42.7%	859.9	104.9
Industrial Sector	14,402.1	913.5	6.3%	883.8	91.3
All Sectors	470,236.9	130,717.6	27.8%	124,014.4	24,456.9

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, 2018 (Megawatts, Percent)

		Fuel-Switchable Part of Total		
Producer Type	Total Net Summer Capacity of All Generators Reporting Petroleum Liquids as the Primary Fuel	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	17,694.3	2,682.2	15.2%	2,589.2
Independent Power Producers, Non-Combined Heat and Power Plants	11,597.2	2,806.4	24.2%	1,991.2
Independent Power Producers, Combined Heat and Power Plants	406.0	156.8	38.6%	169.0
Electric Power Sector Subtotal	29,697.5	5,645.4	19.0%	4,749.4
Commercial Sector	816.1	7.7	0.9%	7.4
Industrial Sector	239.4	29.0	12.1%	25.0
All Sectors	30,753.0	5,682.1	18.5%	4,781.7

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, 2018 (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	184	27,437.8	7,681.2
Combined Cycle	378	45,551.9	5,227.9
Internal Combustion	319	1,249.3	397.4
Gas Turbine	878	56,478.6	11,150.4
All Fuel Switchable Prime Movers	1,759	130,717.6	24,456.9

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, 2018 (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	280	11,157.5	3,367.4
1970-1974	262	13,984.0	3,793.8
1975-1979	98	11,307.6	3,212.2
1980-1984	39	846.8	199.3
1985-1989	87	2,738.7	205.5
1990-1994	195	11,538.5	1,353.0
1995-1999	130	9,245.3	1,651.0
2000-2004	401	38,339.1	6,379.0
2005-2009	118	15,273.1	1,733.9
2010-2014	98	10,950.0	73.2
2015-2018	51	5,337.0	2,488.6
Total	1,759	130,717.6	24,456.9

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, 2008 - 2018 (Thousand Tons)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	1,042,335	760,326	276,565	369	5,075
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
Year 2016					
January	61,983	45,395	16,319	12	258
February	50,516	37,538	12,717	13	248
March	39,864	30,983	8,616	13	252
April	39,065	28,614	10,238	7	206
May	45,032	33,712	11,064	6	249
June	63,186	46,191	16,721	7	266
July	74,132	53,946	19,894	7	285
August	73,798	53,681	19,827	8	282
September	62,335	44,665	17,407	8	254
October	54,537	39,319	14,974	8	237
November	48,076	35,090	12,758	10	218
December	64,847	47,058	17,512	12	266
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

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, 2008 - 2018 (Thousand Tons)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	22,168	0	3,689	1,652	16,827
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
Year 2016					
January	1,624	288	133	63	1,140
February	1,503	277	130	62	1,034
March	1,433	232	117	61	1,023
April	1,215	204	103	39	870
May	1,264	215	90	31	929
June	1,353	241	97	39	976
July	1,472	278	118	39	1,036
August	1,434	270	112	42	1,010
September	1,257	216	97	41	903
October	1,260	224	105	42	889
November	1,256	233	99	50	875
December	1,515	301	136	63	1,015
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

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, 2008 - 2018 (Thousand Tons)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	1,064,503	760,326	280,254	2,021	21,902
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
Year 2016					
January	63,607	45,683	16,452	75	1,397
February	52,019	37,815	12,846	75	1,282
March	41,297	31,215	8,733	74	1,275
April	40,280	28,818	10,341	46	1,076
May	46,297	33,928	11,154	37	1,178
June	64,539	46,432	16,818	46	1,243
July	75,604	54,224	20,012	46	1,321
August	75,232	53,951	19,938	49	1,292
September	63,592	44,881	17,504	50	1,157
October	55,798	39,543	15,079	50	1,126
November	49,331	35,322	12,857	60	1,093
December	66,362	47,359	17,648	75	1,280
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

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, 2008 - 2018 (Billion Btus)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	20,548,610	15,189,050	5,242,194	8,070	109,296
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
Year 2016					
January	1,187,475	878,838	302,987	254	5,396
February	973,346	732,061	235,873	276	5,136
March	764,234	602,203	156,482	270	5,279
April	758,789	562,897	191,346	145	4,401
May	863,759	656,726	201,836	117	5,081
June	1,214,088	903,015	305,500	144	5,430
July	1,427,172	1,052,005	369,212	146	5,810
August	1,421,999	1,045,279	370,894	158	5,668
September	1,191,721	867,652	318,734	172	5,163
October	1,032,754	757,171	270,644	161	4,778
November	910,707	676,849	229,268	201	4,389
December	1,233,866	906,931	321,327	248	5,360
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

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.E. Coal: Consumption for Useful Thermal Output,
by Sector, 2008 - 2018 (Billion Btus)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	503,096	0	81,416	36,163	385,517
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
Year 2016					
January	33,833	4,989	2,985	1,309	24,550
February	31,219	4,833	2,882	1,303	22,200
March	30,053	4,079	2,601	1,276	22,097
April	25,599	3,546	2,268	790	18,996
May	26,306	3,793	1,988	601	19,924
June	27,987	4,171	2,124	813	20,879
July	30,218	4,835	2,571	808	22,005
August	29,238	4,654	2,393	858	21,334
September	25,837	3,698	2,130	845	19,163
October	25,606	3,798	2,312	833	18,663
November	25,634	4,011	2,208	1,011	18,405
December	30,841	5,184	2,867	1,290	21,501
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	21,051,706	15,189,050	5,323,610	44,233	494,813
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
Year 2016					
January	1,221,308	883,827	305,973	1,563	29,945
February	1,004,565	736,895	238,756	1,578	27,336
March	794,286	606,281	159,083	1,546	27,375
April	784,387	566,442	193,614	935	23,396
May	890,066	660,518	203,824	718	25,005
June	1,242,075	907,186	307,624	958	26,308
July	1,457,390	1,056,839	371,783	954	27,814
August	1,451,237	1,049,932	373,287	1,016	27,002
September	1,217,558	871,351	320,865	1,017	24,326
October	1,058,360	760,969	272,956	994	23,440
November	936,341	680,860	231,476	1,212	22,794
December	1,264,707	912,115	324,194	1,538	26,861
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

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 5.2.A. Petroleum Liquids: Consumption for Electricity Generation, by Sector, 2008 - 2018 (Thousand Barrels)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	53,846	38,995	13,152	160	1,538
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
Year 2016					
January	2,472	1,727	685	12	48
February	2,230	1,474	698	12	46
March	1,495	1,096	355	4	40
April	1,421	1,055	320	8	38
May	1,662	1,212	386	8	56
June	1,693	1,275	364	7	48
July	2,287	1,711	514	11	52
August	2,231	1,644	537	10	39
September	1,620	1,128	441	7	44
October	1,629	1,156	423	7	43
November	1,672	1,249	372	11	40
December	1,995	1,410	530	12	43
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

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.B. Petroleum Liquids: Consumption for Useful Thermal Output, by Sector, 2008 - 2018 (Thousand Barrels)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	7,533	0	1,311	461	5,762
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
Year 2016					
January	231	12	24	43	153
February	316	17	39	27	233
March	178	3	28	7	140
April	174	3	16	17	138
May	198	3	18	14	163
June	181	6	13	14	149
July	185	2	12	28	142
August	153	3	15	18	117
September	143	3	14	9	117
October	174	3	18	9	144
November	167	4	14	35	113
December	178	9	33	26	110
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

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 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, 2008 - 2018 (Thousand Barrels)

		Electric Power Sector				
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector	
Annual Totals						
2008	61,379	38,995	14,463	621	7,300	
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	
Year 2016						
January	2,702	1,739	709	55	200	
February	2,546	1,491	737	38	279	
March	1,673	1,099	383	12	180	
April	1,594	1,058	337	24	175	
May	1,860	1,216	403	22	219	
June	1,875	1,281	377	21	197	
July	2,472	1,713	527	38	194	
August	2,384	1,647	552	28	156	
September	1,763	1,131	455	16	161	
October	1,803	1,159	441	16	187	
November	1,838	1,254	386	46	153	
December	2,173	1,419	563	37	154	
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	

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	332,367	242,379	79,816	957	9,215
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
Year 2016					
January	14,680	10,356	3,982	72	271
February	13,324	8,854	4,138	70	262
March	8,819	6,544	2,024	25	226
April	8,449	6,324	1,866	44	215
May	9,830	7,268	2,230	50	283
June	10,072	7,665	2,120	40	248
July	13,747	10,373	3,043	63	268
August	13,428	9,991	3,161	61	215
September	9,666	6,809	2,582	41	234
October	9,792	7,011	2,499	41	241
November	9,882	7,410	2,183	65	224
December	11,768	8,362	3,094	68	244
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	45,481	0	7,644	2,786	35,051
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
Year 2016					
January	1,368	70	138	266	894
February	1,831	102	210	162	1,355
March	1,027	18	154	42	812
April	1,023	18	95	101	810
May	1,112	20	103	83	906
June	1,027	32	75	86	834
July	1,052	12	72	172	796
August	887	18	88	107	674
September	814	14	80	55	665
October	1,016	17	107	49	843
November	976	25	84	217	651
December	1,030	50	184	155	641
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector				
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector	
Annual Totals						
2008	377,848	242,379	87,460	3,743	44,266	
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	
Year 2016						
January	16,048	10,426	4,119	338	1,165	
February	15,155	8,957	4,349	232	1,617	
March	9,846	6,563	2,178	68	1,038	
April	9,473	6,341	1,961	145	1,025	
May	10,943	7,288	2,333	133	1,189	
June	11,099	7,696	2,195	126	1,082	
July	14,799	10,384	3,116	235	1,064	
August	14,315	10,009	3,249	168	889	
September	10,480	6,823	2,662	96	899	
October	10,808	7,028	2,606	90	1,084	
November	10,858	7,435	2,267	282	874	
December	12,798	8,412	3,278	223	885	
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	

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 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, 2008 - 2018 (Thousand Tons)

		Electric Power Sector				
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector	
Annual Totals						
2008	5,417	2,296	2,704	1	416	
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	
Year 2016						
January	342	302	16	0	23	
February	330	271	39	0	19	
March	362	283	63	0	17	
April	382	325	43	0	14	
May	370	296	52	0	23	
June	380	308	52	0	21	
July	400	324	56	0	20	
August	419	337	61	0	21	
September	376	311	49	0	16	
October	250	171	61	0	18	
November	307	239	46	0	21	
December	336	260	55	0	20	
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	

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, 2008 - 2018 (Thousand Tons)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	897	0	119	9	769
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
Year 2016					
January	86	1	11	2	73
February	95	0	10	2	83
March	85	0	11	2	72
April	73	1	7	0	66
May	96	0	7	0	89
June	100	0	9	0	91
July	101	1	9	1	91
August	101	1	10	0	91
September	75	1	10	0	64
October	92	1	11	0	80
November	99	0	10	0	89
December	95	1	10	2	83
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

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.C. Petroleum Coke: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2008 - 2018 (Thousand Tons)

		Electric Power Sector				
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector	
Annual Totals						
2008	6,314	2,296	2,823	10	1,184	
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	
Year 2016						
January	427	302	27	3	96	
February	425	272	49	2	102	
March	447	283	74	2	89	
April	455	326	50	0	80	
May	466	296	58	0	112	
June	480	308	60	0	111	
July	502	325	65	1	111	
August	520	337	71	0	112	
September	451	311	59	0	80	
October	342	172	72	0	99	
November	406	240	56	0	110	
December	431	261	65	2	103	
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	

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.D. Petroleum Coke: Consumption for Electricity Generation,
by Sector, 2008 - 2018 (Billion Btus)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	152,933	64,843	76,416	37	11,638
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
Year 2016					
January	9,812	8,651	461	10	690
February	9,404	7,746	1,087	9	562
March	10,110	7,855	1,757	10	488
April	10,509	8,924	1,189	1	395
May	10,267	8,132	1,470	0	665
June	10,541	8,466	1,469	0	605
July	11,109	8,933	1,591	5	580
August	11,365	9,048	1,713	0	605
September	10,470	8,633	1,370	0	467
October	6,894	4,687	1,674	0	533
November	8,511	6,616	1,286	3	606
December	9,311	7,202	1,523	9	577
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

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.E. Petroleum Coke: Consumption for Useful Thermal Output, by Sector, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	27,100	0	3,441	243	23,416
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
Year 2016					
January	2,465	15	306	59	2,085
February	2,806	14	293	51	2,449
March	2,545	13	316	45	2,171
April	2,223	16	194	7	2,007
May	2,829	8	191	0	2,630
June	2,995	7	247	3	2,738
July	2,973	14	265	33	2,661
August	3,031	18	283	0	2,730
September	2,194	14	277	0	1,903
October	2,719	22	302	0	2,395
November	2,872	4	285	4	2,579
December	2,820	13	297	41	2,469
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

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.F. Petroleum Coke: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	180,034	64,843	79,856	280	35,055
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
Year 2016					
January	12,277	8,666	767	69	2,775
February	12,210	7,759	1,380	60	3,011
March	12,655	7,868	2,072	54	2,660
April	12,732	8,939	1,383	8	2,402
May	13,097	8,140	1,661	0	3,295
June	13,536	8,473	1,716	3	3,343
July	14,082	8,947	1,856	38	3,240
August	14,396	9,066	1,995	0	3,335
September	12,664	8,646	1,647	0	2,371
October	9,613	4,709	1,976	0	2,928
November	11,383	6,620	1,571	7	3,185
December	12,131	7,216	1,820	50	3,046
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

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 5.4.A. Natural Gas: Consumption for Electricity Generation,
by Sector, 2008 - 2018 (Million Cubic Feet)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	6,895,843	2,730,134	3,612,197	33,403	520,109
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
Year 2016					
January	786,040	390,246	347,970	3,499	44,325
February	702,082	352,877	304,311	3,344	41,550
March	758,344	377,953	333,147	3,493	43,751
April	734,600	362,063	327,542	3,278	41,717
May	819,345	407,178	365,297	3,620	43,251
June	985,722	497,616	439,024	4,109	44,973
July	1,157,589	569,028	535,036	5,188	48,337
August	1,168,337	564,916	549,161	5,384	48,875
September	932,041	451,574	431,159	4,223	45,086
October	760,610	368,087	345,831	3,675	43,017
November	679,004	333,973	298,069	2,944	44,018
December	686,396	343,384	294,829	3,547	44,637
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

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.B. Natural Gas: Consumption for Useful Thermal Output, by Sector, 2008 - 2018 (Million Cubic Feet)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	793,537	0	326,048	32,813	434,676
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
Year 2016					
January	102,014	3,434	32,304	7,160	59,117
February	92,405	3,264	29,348	6,354	53,439
March	95,161	3,002	30,664	6,298	55,197
April	88,634	2,286	27,002	6,104	53,241
May	92,471	2,888	29,069	6,096	54,418
June	96,618	3,649	30,019	6,907	56,043
July	102,867	3,805	32,099	8,142	58,821
August	105,025	3,723	33,436	8,377	59,489
September	95,330	2,973	29,581	6,850	55,926
October	92,360	2,740	27,138	6,125	56,357
November	90,321	2,812	27,191	5,773	54,544
December	98,660	3,520	29,054	6,758	59,328
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

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.

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Table 5.4.C. Natural Gas: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2008 - 2018 (Million Cubic Feet)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	7,689,380	2,730,134	3,938,245	66,216	954,785
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
Year 2016					
January	888,054	393,680	380,273	10,658	103,442
February	794,487	356,141	333,659	9,697	94,990
March	853,505	380,955	363,811	9,791	98,949
April	823,234	364,349	354,544	9,383	94,958
May	911,816	410,066	394,365	9,716	97,669
June	1,082,340	501,265	469,043	11,016	101,016
July	1,260,455	572,833	567,135	13,330	107,158
August	1,273,362	568,640	582,596	13,761	108,365
September	1,027,371	454,547	460,740	11,073	101,012
October	852,970	370,827	372,969	9,800	99,374
November	769,325	336,785	325,260	8,716	98,563
December	785,056	346,904	323,883	10,305	103,965
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

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.

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**Table 5.4.D. Natural Gas: Consumption for Electricity Generation,
by Sector, 2008 - 2018 (Billion Btus)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	7,087,191	2,803,283	3,712,872	34,138	536,899
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
Year 2016					
January	812,780	402,563	360,873	3,597	45,746
February	726,533	365,074	315,091	3,438	42,930
March	784,564	391,226	344,643	3,579	45,116
April	759,120	373,838	338,893	3,365	43,024
May	846,265	420,742	377,249	3,713	44,562
June	1,017,430	513,721	453,168	4,214	46,327
July	1,195,692	587,361	553,161	5,330	49,841
August	1,210,345	585,541	568,729	5,538	50,537
September	965,184	467,729	446,538	4,339	46,577
October	786,171	380,558	357,472	3,777	44,364
November	701,839	345,822	307,682	3,026	45,309
December	709,903	355,368	304,945	3,635	45,955
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	813,794	0	333,197	33,434	447,163
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
Year 2016					
January	105,274	3,537	33,363	7,427	60,947
February	95,395	3,362	30,296	6,587	55,150
March	98,046	3,090	31,506	6,524	56,926
April	91,393	2,345	27,822	6,324	54,902
May	95,279	2,955	29,897	6,316	56,111
June	99,552	3,743	30,879	7,157	57,772
July	106,090	3,910	33,077	8,441	60,662
August	108,667	3,840	34,596	8,693	61,539
September	98,533	3,049	30,593	7,109	57,782
October	95,307	2,804	27,973	6,357	58,173
November	93,097	2,876	27,953	5,992	56,275
December	101,767	3,612	29,964	7,012	61,179
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	7,900,986	2,803,283	4,046,069	67,571	984,062
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
Year 2016					
January	918,053	406,100	394,236	11,024	106,693
February	821,928	368,437	345,386	10,025	98,080
March	882,609	394,316	376,149	10,103	102,041
April	850,513	376,184	366,715	9,689	97,926
May	941,544	423,696	407,146	10,028	100,674
June	1,116,982	517,465	484,047	11,371	104,099
July	1,301,782	591,270	586,238	13,771	110,503
August	1,319,012	589,381	603,325	14,230	112,076
September	1,063,717	470,778	477,131	11,449	104,359
October	881,478	383,362	385,445	10,134	102,537
November	794,936	348,698	335,635	9,018	101,584
December	811,670	358,980	334,909	10,647	107,134
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	338,786	29,150	130,122	287	179,227
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
Year 2016					
January	31,835	4,082	13,250	40	14,463
February	30,721	3,797	13,249	41	13,634
March	30,380	3,388	13,073	23	13,897
April	25,323	2,547	10,177	31	12,569
May	26,827	2,497	10,522	14	13,794
June	29,961	3,835	11,762	59	14,305
July	32,167	4,067	13,230	51	14,818
August	33,526	4,113	14,559	72	14,782
September	30,502	3,489	13,145	51	13,817
October	27,598	2,574	11,139	29	13,857
November	29,176	2,597	12,211	20	14,349
December	31,967	4,051	13,200	42	14,674
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	923,889	0	18,075	1,123	904,690
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
Year 2016					
January	84,483	1,087	2,270	460	80,665
February	79,157	1,150	2,299	415	75,293
March	79,225	1,084	1,926	288	75,928
April	74,954	732	1,780	353	72,089
May	78,419	949	1,753	280	75,437
June	79,180	707	1,832	415	76,225
July	80,796	943	1,826	384	77,644
August	81,164	931	1,794	442	77,998
September	75,314	513	1,918	395	72,488
October	76,347	508	1,450	347	74,041
November	80,391	1,132	1,898	340	77,021
December	100,410	1,214	2,159	401	96,636
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	1,262,675	29,150	148,198	1,410	1,083,917
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
Year 2016					
January	116,318	5,169	15,520	500	95,128
February	109,878	4,947	15,548	456	88,928
March	109,606	4,471	14,999	311	89,825
April	100,276	3,279	11,956	384	84,657
May	105,246	3,446	12,275	294	89,231
June	109,140	4,542	13,594	474	90,530
July	112,964	5,010	15,056	435	92,462
August	114,690	5,044	16,353	514	92,780
September	105,816	4,002	15,063	446	86,306
October	103,946	3,083	12,589	376	87,898
November	109,567	3,729	14,108	360	91,370
December	132,377	5,265	15,360	443	111,310
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

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.A. Landfill Gas: Consumption for Electricity Generation, by Sector, 2008 - 2018 (Million Cubic Feet)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	195,777	20,465	169,547	5,235	530
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
Year 2016					
January	22,612	2,036	18,360	1,865	351
February	21,859	2,088	17,744	1,705	323
March	23,337	2,187	19,021	1,786	343
April	22,556	2,080	18,805	1,340	331
May	23,744	2,120	19,554	1,717	354
June	22,668	1,896	18,683	1,768	320
July	23,052	1,950	19,047	1,734	321
August	23,038	2,011	18,978	1,726	324
September	21,757	2,010	17,792	1,678	278
October	20,377	1,922	16,583	1,610	263
November	24,047	1,941	20,036	1,762	307
December	24,510	2,041	20,392	1,753	324
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

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, 2008 - 2018 (Million Cubic Feet)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	1,025	0	454	433	138
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
Year 2016					
January	352	0	202	84	66
February	340	0	189	86	65
March	358	0	196	86	75
April	355	0	201	88	66
May	356	0	194	90	72
June	344	0	193	85	66
July	335	0	181	87	66
August	332	0	181	82	68
September	327	0	187	81	59
October	301	0	157	87	56
November	378	0	227	86	66
December	387	0	230	91	65
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

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.C. Landfill Gas: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2008 - 2018 (Million Cubic Feet)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	196,802	20,465	170,001	5,668	668
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
Year 2016					
January	22,964	2,036	18,562	1,949	417
February	22,200	2,088	17,933	1,791	388
March	23,694	2,187	19,217	1,873	417
April	22,911	2,081	19,005	1,428	397
May	24,100	2,120	19,748	1,807	425
June	23,012	1,896	18,876	1,853	386
July	23,387	1,950	19,229	1,822	386
August	23,370	2,011	19,159	1,808	392
September	22,084	2,010	17,978	1,759	337
October	20,678	1,922	16,740	1,697	319
November	24,425	1,941	20,263	1,848	373
December	24,897	2,042	20,622	1,845	388
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

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.D. Landfill Gas: Consumption for Electricity Generation,
by Sector, 2008 - 2018 (Billion Btus)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	94,215	10,242	81,029	2,668	276
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
Year 2016					
January	11,143	1,023	9,214	730	176
February	10,782	1,051	8,890	678	162
March	11,544	1,101	9,557	714	172
April	11,219	1,052	9,426	575	166
May	11,762	1,083	9,791	710	178
June	11,246	967	9,385	732	161
July	11,426	997	9,561	707	161
August	11,380	1,007	9,500	711	163
September	10,722	1,004	8,889	690	139
October	10,089	978	8,327	652	132
November	11,925	985	10,041	745	154
December	12,127	1,047	10,190	728	163
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

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.E. Landfill Gas: Consumption for Useful Thermal Output,
by Sector, 2008 - 2018 (Billion Btus)**

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	552	0	271	211	70
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
Year 2016					
January	190	0	109	49	32
February	182	0	102	49	31
March	189	0	105	48	36
April	194	0	111	51	32
May	192	0	106	52	34
June	185	0	105	48	32
July	178	0	96	50	32
August	176	0	97	46	33
September	174	0	100	46	28
October	157	0	80	50	27
November	208	0	127	48	32
December	211	0	127	52	31
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

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.F. Landfill Gas: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	94,768	10,242	81,300	2,879	346
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
Year 2016					
January	11,333	1,023	9,323	779	208
February	10,964	1,051	8,992	728	194
March	11,733	1,101	9,661	762	208
April	11,413	1,052	9,537	626	198
May	11,954	1,083	9,897	762	212
June	11,431	967	9,491	781	192
July	11,604	997	9,657	757	193
August	11,556	1,007	9,597	757	195
September	10,896	1,004	8,988	736	168
October	10,246	978	8,408	701	159
November	12,133	985	10,168	794	186
December	12,338	1,047	10,317	780	194
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

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, 2008 - 2018 (Thousand Tons)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	19,805	509	17,487	1,809	0
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
Year 2016					
January	1,398	34	1,161	202	1
February	1,283	27	1,081	174	1
March	1,344	41	1,091	211	1
April	1,413	40	1,153	219	1
May	1,463	44	1,205	214	1
June	1,468	40	1,202	225	1
July	1,486	37	1,212	236	1
August	1,509	42	1,233	233	1
September	1,397	43	1,142	210	1
October	1,378	37	1,127	213	1
November	1,379	39	1,127	212	1
December	1,476	38	1,220	218	0
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

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.B. Biogenic Municipal Solid Waste: Consumption for Useful Thermal Output, by Sector, 2008 - 2018 (Thousand Tons)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	2,328	0	806	1,514	8
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
Year 2016					
January	191	0	80	92	18
February	189	0	87	88	14
March	219	0	96	104	19
April	181	0	65	98	18
May	182	0	70	96	17
June	172	0	73	81	18
July	186	0	74	96	16
August	191	0	71	96	23
September	176	0	64	95	18
October	179	0	65	95	19
November	180	0	68	94	17
December	185	0	71	98	16
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

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, 2008 - 2018 (Thousand Tons)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	22,134	509	18,294	3,323	8
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
Year 2016					
January	1,589	34	1,241	295	19
February	1,472	27	1,167	262	15
March	1,563	41	1,188	315	19
April	1,594	40	1,218	317	18
May	1,646	44	1,274	310	18
June	1,640	40	1,275	305	19
July	1,673	37	1,286	332	17
August	1,700	42	1,304	330	25
September	1,573	43	1,206	305	19
October	1,557	37	1,192	308	20
November	1,559	39	1,195	306	18
December	1,661	38	1,291	316	16
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	148,452	4,476	130,041	13,934	0
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
Year 2016					
January	11,170	320	9,224	1,619	7
February	10,193	258	8,556	1,374	6
March	10,768	386	8,703	1,673	6
April	11,359	405	9,188	1,759	6
May	11,677	377	9,602	1,690	8
June	11,682	385	9,510	1,778	8
July	11,827	355	9,592	1,870	10
August	12,001	406	9,732	1,853	11
September	11,073	412	8,990	1,661	10
October	11,068	358	8,994	1,705	10
November	11,182	392	9,081	1,702	7
December	11,958	380	9,831	1,746	0
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

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.E. Biogenic Municipal Solid Waste: Consumption for Useful Thermal Output, by Sector, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	18,272	0	6,039	12,174	59
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
Year 2016					
January	1,578	0	630	789	159
February	1,505	0	648	747	110
March	1,790	0	737	894	160
April	1,501	0	516	836	149
May	1,498	0	548	817	133
June	1,375	0	560	682	133
July	1,521	0	587	818	117
August	1,580	0	548	823	210
September	1,452	0	498	809	144
October	1,478	0	509	809	160
November	1,466	0	540	800	126
December	1,513	0	557	840	117
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

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, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	166,723	4,476	136,080	26,108	59
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
Year 2016					
January	12,748	320	9,853	2,408	166
February	11,698	258	9,204	2,121	116
March	12,558	386	9,439	2,567	166
April	12,860	405	9,704	2,595	156
May	13,175	377	10,150	2,507	141
June	13,057	385	10,071	2,461	140
July	13,348	355	10,179	2,688	126
August	13,581	406	10,280	2,676	221
September	12,525	412	9,489	2,470	154
October	12,546	358	9,503	2,515	170
November	12,649	392	9,621	2,502	134
December	13,471	380	10,388	2,586	117
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

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.

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.D. Other Waste Biomass: Consumption for Electricity Generation, by Sector, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	24,288	3,409	12,745	3,684	4,450
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
Year 2016					
January	2,790	210	1,531	469	580
February	2,930	235	1,654	453	588
March	2,898	131	1,562	464	740
April	3,039	140	1,749	437	712
May	2,727	244	1,277	475	731
June	2,475	196	1,338	444	497
July	2,569	188	1,336	467	578
August	3,072	258	1,769	459	585
September	2,781	227	1,590	461	503
October	2,660	216	1,407	449	588
November	2,996	274	1,544	457	721
December	2,850	233	1,439	468	710
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

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.

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Table 5.8.E. Other Waste Biomass: Consumption for Useful Thermal Output, by Sector, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	41,851	0	9,674	1,542	30,635
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
Year 2016					
January	5,086	0	923	324	3,839
February	5,329	0	944	313	4,072
March	6,149	7	1,312	311	4,520
April	5,490	3	1,232	273	3,982
May	4,878	0	888	306	3,684
June	3,227	1	687	306	2,234
July	3,722	0	822	301	2,599
August	3,543	4	742	277	2,520
September	3,228	1	633	293	2,302
October	5,057	1	876	240	3,940
November	5,669	0	1,094	323	4,251
December	5,745	1	1,099	302	4,342
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

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Combined Heat and Power Plant Report, and predecessor forms.

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Table 5.8.F. Other Waste Biomass: Consumption for Electricity Generation and Useful Thermal Output, by Sector, 2008 - 2018 (Billion Btus)

		Electric Power Sector			
Period	Total (all sectors)	Electric Utilities	Independent Power Producers	Commercial Sector	Industrial Sector
Annual Totals					
2008	66,139	3,409	22,419	5,227	35,085
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
Year 2016					
January	7,877	210	2,454	793	4,419
February	8,258	235	2,597	766	4,660
March	9,047	138	2,873	775	5,260
April	8,529	144	2,981	709	4,695
May	7,605	244	2,165	782	4,415
June	5,702	197	2,024	751	2,731
July	6,291	188	2,158	768	3,177
August	6,615	262	2,511	736	3,105
September	6,009	228	2,223	753	2,805
October	7,716	217	2,283	689	4,528
November	8,664	274	2,638	780	4,973
December	8,595	235	2,538	770	5,052
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

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, 2018 and 2017 (Thousand Tons)

Census Division and State				Electric Power Sector							
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	531	846	-37.0%	294	134	233	709	0	0	4	3
Connecticut	221	137	60.0%	0	0	221	137	0	0	0	0
Maine	16	15	5.1%	0	0	12	12	0	0	4	3
Massachusetts	0	559	-100.0%	0	0	0	559	0	0	0	0
New Hampshire	294	134	119.0%	294	134	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	24,113	25,114	-4.0%	0	0	24,075	24,988	0	0	39	126
New Jersey	504	513	-1.8%	0	0	504	513	0	0	0	0
New York	276	311	-11.0%	0	0	272	242	0	0	4	69
Pennsylvania	23,334	24,290	-3.9%	0	0	23,299	24,233	0	0	35	57
East North Central	144,074	143,842	0.2%	86,841	88,355	56,524	54,764	18	16	691	707
Illinois	36,013	34,770	3.6%	2,254	2,166	33,239	32,059	9	8	511	538
Indiana	39,080	35,450	10.0%	36,910	34,143	2,161	1,300	9	8	0	0
Michigan	24,235	24,028	0.9%	23,991	23,796	212	217	0	0	33	15
Ohio	25,122	28,524	-12.0%	4,209	7,335	20,912	21,188	0	0	1	1
Wisconsin	19,624	21,070	-6.9%	19,477	20,916	0	0	0	0	147	154
West North Central	118,759	115,350	3.0%	117,565	114,154	0	0	21	28	1,173	1,168
Iowa	16,187	14,259	14.0%	15,673	13,765	0	0	19	22	495	473
Kansas	13,176	12,542	5.1%	13,176	12,542	0	0	0	0	0	0
Minnesota	13,675	13,231	3.4%	13,421	12,957	0	0	0	1	253	273
Missouri	36,978	39,417	-6.2%	36,976	39,411	0	0	2	5	0	0
Nebraska	14,834	12,959	14.0%	14,443	12,570	0	0	0	0	391	388
North Dakota	22,457	21,654	3.7%	22,423	21,620	0	0	0	0	34	34
South Dakota	1,453	1,289	13.0%	1,453	1,289	0	0	0	0	0	0
South Atlantic	85,873	91,459	-6.1%	75,137	81,178	10,538	10,022	12	14	186	245
Delaware	167	186	-11.0%	0	0	167	186	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	13,384	16,874	-21.0%	13,365	16,800	0	48	0	0	18	26
Georgia	16,996	16,808	1.1%	16,953	16,770	0	0	0	0	43	38
Maryland	4,382	3,675	19.0%	0	0	4,367	3,656	0	0	15	18
North Carolina	12,564	13,435	-6.5%	12,480	13,339	46	52	11	12	28	32
South Carolina	8,144	7,506	8.5%	8,141	7,502	0	0	0	0	3	5
Virginia	4,565	5,118	-11.0%	4,200	4,760	284	230	1	2	79	125
West Virginia	25,671	27,856	-7.8%	19,996	22,007	5,675	5,848	0	0	0	0
East South Central	59,619	61,865	-3.6%	56,472	59,294	2,996	2,419	0	0	151	152
Alabama	16,249	16,242	0.0%	16,235	16,231	0	0	0	0	14	10
Kentucky	28,368	27,484	3.2%	28,368	27,484	0	0	0	0	0	0
Mississippi	4,506	3,865	17.0%	1,510	1,446	2,996	2,419	0	0	0	0
Tennessee	10,496	14,274	-26.0%	10,359	14,132	0	0	0	0	137	142
West South Central	111,125	128,187	-13.0%	59,876	59,045	51,127	68,972	0	0	123	170
Arkansas	17,461	15,202	15.0%	14,617	13,238	2,835	1,956	0	0	8	8
Louisiana	8,110	8,397	-3.4%	5,339	5,035	2,771	3,362	0	0	0	0
Oklahoma	9,656	11,101	-13.0%	8,348	9,852	1,193	1,088	0	0	114	162
Texas	75,899	93,488	-19.0%	31,572	30,921	44,327	62,567	0	0	0	0
Mountain	86,299	91,354	-5.5%	76,223	80,973	9,973	10,236	0	0	104	145
Arizona	16,814	16,929	-0.7%	16,814	16,929	0	0	0	0	0	0
Colorado	15,269	16,630	-8.2%	15,266	16,628	0	0	0	0	3	2
Idaho	4	5	-15.0%	0	0	0	0	0	0	4	5
Montana	8,738	8,946	-2.3%	233	217	8,500	8,726	0	0	5	2
Nevada	1,412	1,097	29.0%	816	535	596	562	0	0	0	0
New Mexico	7,262	10,494	-31.0%	7,262	10,494	0	0	0	0	0	0
Utah	12,332	12,482	-1.2%	11,927	12,026	405	412	0	0	0	44
Wyoming	24,468	24,770	-1.2%	23,905	24,144	472	535	0	0	91	91
Pacific Contiguous	4,590	4,720	-2.8%	898	1,031	3,628	3,623	0	0	63	66
California	57	59	-2.9%	0	0	0	0	0	0	57	59
Oregon	898	1,031	-13.0%	898	1,031	0	0	0	0	0	0
Washington	3,635	3,630	0.1%	0	0	3,628	3,623	0	0	7	7
Pacific Noncontiguous	1,230	1,173	4.9%	312	226	882	911	36	36	0	0
Alaska	496	414	20.0%	312	226	148	152	36	36	0	0
Hawaii	734	759	-3.2%	0	0	734	759	0	0	0	0
U.S. Total	636,213	663,911	-4.2%	473,617	484,389	159,976	176,643	87	95	2,534	2,783

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, 2018 and 2017 (Thousand Barrels)

Census Division and State				Electric Power Sector							
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	2,109	1,362	55.0%	345	177	1,713	1,135	36	38	16	13
Connecticut	601	345	74.0%	9	11	588	330	3	4	1	1
Maine	317	272	17.0%	0	0	298	254	6	6	13	11
Massachusetts	767	479	60.0%	124	77	631	388	10	13	2	1
New Hampshire	298	163	83.0%	201	61	82	89	15	13	0	0
Rhode Island	115	81	42.0%	0	5	113	74	2	2	0	0
Vermont	10	22	-53.0%	10	22	0	0	0	0	0	0
Middle Atlantic	4,464	1,693	164.0%	1,066	458	3,306	1,151	36	26	55	58
New Jersey	469	126	273.0%	6	0	458	125	4	0	1	0
New York	2,596	1,018	155.0%	1,057	457	1,485	508	20	16	35	38
Pennsylvania	1,398	549	155.0%	3	0	1,364	518	12	11	19	20
East North Central	1,126	996	13.0%	623	648	473	323	8	6	22	20
Illinois	106	104	2.2%	16	19	90	85	0	0	0	0
Indiana	233	216	8.2%	214	197	1	2	1	0	18	16
Michigan	254	227	12.0%	247	221	0	0	6	5	1	1
Ohio	450	377	19.0%	66	139	380	235	1	1	3	2
Wisconsin	83	73	13.0%	80	72	2	1	0	0	1	1
West North Central	697	552	26.0%	647	525	47	25	2	2	1	1
Iowa	129	118	9.7%	121	116	7	2	0	0	0	0
Kansas	118	121	-2.5%	118	121	0	0	0	0	0	0
Minnesota	98	76	29.0%	56	51	39	23	2	1	1	1
Missouri	223	136	65.0%	223	136	0	0	0	0	0	0
Nebraska	34	16	110.0%	34	16	0	0	0	0	0	0
North Dakota	74	70	5.8%	74	70	0	0	0	0	0	0
South Dakota	20	15	34.0%	20	15	0	0	0	0	0	0
South Atlantic	6,283	3,270	92.0%	4,460	2,530	1,530	546	167	103	125	91
Delaware	333	50	563.0%	12	5	321	45	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	1,031	926	11.0%	983	893	27	17	0	0	21	17
Georgia	497	239	108.0%	252	174	176	15	7	4	62	45
Maryland	549	243	126.0%	11	7	533	231	2	3	3	2
North Carolina	1,231	486	154.0%	1,128	448	77	23	5	3	21	11
South Carolina	609	202	201.0%	586	190	11	3	0	0	12	9
Virginia	1,744	916	90.0%	1,225	607	359	209	154	93	6	7
West Virginia	290	208	39.0%	264	206	26	2	0	0	0	0
East South Central	603	521	16.0%	520	503	69	7	0	0	13	10
Alabama	146	64	130.0%	69	50	69	7	0	0	8	7
Kentucky	179	189	-5.2%	179	189	0	0	0	0	0	0
Mississippi	50	25	97.0%	47	24	0	0	0	0	3	2
Tennessee	228	243	-6.3%	225	241	0	1	0	0	2	1
West South Central	247	298	-17.0%	191	187	47	104	1	1	8	5
Arkansas	59	85	-31.0%	46	42	10	41	0	0	3	2
Louisiana	41	44	-8.0%	41	44	0	0	0	0	0	0
Oklahoma	33	29	13.0%	31	27	0	0	0	0	2	1
Texas	115	140	-18.0%	74	73	37	63	1	1	3	2
Mountain	370	409	-9.5%	326	369	44	40	0	0	0	0
Arizona	95	107	-11.0%	95	107	0	0	0	0	0	0
Colorado	34	23	47.0%	33	23	1	0	0	0	0	0
Idaho	0	0	-39.0%	0	0	0	0	0	0	0	0
Montana	37	31	17.0%	1	1	35	30	0	0	0	0
Nevada	21	19	14.0%	16	12	5	7	0	0	0	0
New Mexico	42	81	-48.0%	42	81	0	0	0	0	0	0
Utah	64	66	-3.0%	62	63	2	2	0	0	0	0
Wyoming	78	83	-6.0%	78	83	0	0	0	0	0	0
Pacific Contiguous	164	150	9.3%	80	95	35	29	2	1	47	24
California	120	94	28.0%	64	69	17	9	1	1	38	15
Oregon	9	18	-53.0%	9	18	0	0	0	0	0	0
Washington	35	38	-7.3%	7	8	18	20	0	0	9	9
Pacific Noncontiguous	12,552	12,444	0.9%	10,086	10,076	2,203	2,102	16	13	246	254
Alaska	1,454	1,585	-8.3%	1,388	1,517	0	0	6	5	59	62
Hawaii	11,098	10,859	2.2%	8,698	8,559	2,203	2,102	10	7	187	191
U.S. Total	28,614	21,696	32.0%	18,345	15,567	9,467	5,461	269	191	534	476

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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.

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, 2018 and 2017 (Thousand Tons)

Census Division and State				Electric Power Sector							
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
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	20	27	-24.0%	0	0	0	0	0	0	20	27
New Jersey	7	7	-6.7%	0	0	0	0	0	0	7	7
New York	0	0	--	0	0	0	0	0	0	0	0
Pennsylvania	14	19	-30.0%	0	0	0	0	0	0	14	19
East North Central	1,160	956	21.0%	558	504	550	380	0	0	52	72
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	0	0	--	0	0	0	0	0	0	0	0
Michigan	564	527	7.0%	513	456	0	0	0	0	51	72
Ohio	551	380	45.0%	0	0	550	380	0	0	1	0
Wisconsin	45	48	-7.9%	45	48	0	0	0	0	0	0
West North Central	7	8	-3.5%	0	0	0	0	2	3	5	5
Iowa	7	8	-3.5%	0	0	0	0	2	3	5	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	594	381	56.0%	559	347	0	0	0	0	35	34
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	559	347	61.0%	559	347	0	0	0	0	0	0
Georgia	35	34	4.0%	0	0	0	0	0	0	35	34
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	166	-100.0%	0	166	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	166	-100.0%	0	166	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	1,687	1,791	-5.8%	1,624	1,714	0	0	0	0	64	77
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	1,646	1,747	-5.7%	1,624	1,714	0	0	0	0	23	32
Oklahoma	0	0	--	0	0	0	0	0	0	0	0
Texas	41	45	-8.0%	0	0	0	0	0	0	41	45
Mountain	154	162	-4.8%	0	0	154	162	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	154	162	-4.8%	0	0	154	162	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	3,623	3,490	3.8%	2,740	2,731	704	542	2	3	177	214

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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, 2018 and 2017 (Million Cubic Feet)

Census Division and State				Electric Power Sector							
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	371,172	368,502	0.7%	2,658	3,061	353,979	352,208	5,862	5,358	8,673	7,873
Connecticut	141,310	113,830	24.0%	522	883	134,752	107,093	2,325	2,263	3,711	3,591
Maine	15,859	15,247	4.0%	0	0	13,718	13,717	148	152	1,993	1,377
Massachusetts	133,263	160,734	-17.0%	1,724	1,765	127,086	155,004	3,118	2,659	1,334	1,307
New Hampshire	21,790	26,204	-17.0%	400	400	21,163	25,575	32	43	195	186
Rhode Island	58,934	52,470	12.0%	0	0	57,260	50,820	234	237	1,440	1,412
Vermont	16	16	-2.9%	11	12	0	0	5	4	0	0
Middle Atlantic	1,210,777	1,160,599	4.3%	96,344	89,698	1,091,715	1,050,267	8,068	7,960	14,649	12,674
New Jersey	270,279	262,660	2.9%	1,602	2,092	265,520	257,521	1,094	1,144	2,063	1,903
New York	401,223	370,211	8.4%	94,681	87,541	296,061	274,165	6,305	6,108	4,176	2,396
Pennsylvania	539,276	527,729	2.2%	62	64	530,134	518,581	670	708	8,410	8,376
East North Central	1,028,576	790,293	30.0%	379,177	282,951	615,520	475,973	7,958	7,996	25,922	23,374
Illinois	141,840	146,271	-3.0%	10,478	8,355	125,035	130,450	2,094	2,487	4,233	4,980
Indiana	200,862	136,308	47.0%	90,971	57,187	96,367	66,883	870	988	12,653	11,251
Michigan	234,395	195,965	20.0%	91,603	70,122	136,240	119,546	3,195	2,957	3,358	3,340
Ohio	322,524	206,856	56.0%	72,293	54,016	247,949	150,795	1,218	1,227	1,064	818
Wisconsin	128,955	104,893	23.0%	113,832	93,269	9,929	8,299	580	339	4,614	2,985
West North Central	224,073	161,737	39.0%	194,749	139,274	24,193	18,079	1,604	1,463	3,527	2,921
Iowa	49,227	31,573	56.0%	46,478	29,265	76	37	492	469	2,181	1,801
Kansas	28,767	20,816	38.0%	28,281	20,589	0	0	0	0	486	227
Minnesota	61,174	48,862	25.0%	52,642	39,170	7,463	8,574	492	491	578	628
Missouri	56,961	42,038	35.0%	39,575	31,921	16,654	9,468	586	490	146	159
Nebraska	9,230	6,180	49.0%	9,196	6,167	0	0	34	13	0	0
North Dakota	9,615	6,554	47.0%	9,479	6,448	0	0	0	0	136	106
South Dakota	9,099	5,713	59.0%	9,099	5,713	0	0	0	0	0	0
South Atlantic	2,673,712	2,414,058	11.0%	2,164,942	1,970,862	471,691	410,088	10,387	7,872	26,693	25,237
Delaware	40,378	49,376	-18.0%	282	186	35,931	44,696	0	0	4,165	4,494
District of Columbia	614	601	2.2%	0	0	0	0	614	601	0	0
Florida	1,272,791	1,192,464	6.7%	1,201,253	1,128,449	63,351	56,299	151	131	8,036	7,586
Georgia	376,880	373,296	1.0%	284,254	280,701	88,999	88,928	0	0	3,626	3,666
Maryland	105,437	55,972	88.0%	26,042	3,224	70,383	46,190	8,567	6,111	446	448
North Carolina	331,804	279,751	19.0%	280,691	240,963	49,428	37,277	974	970	711	541
South Carolina	169,642	133,271	27.0%	143,129	114,333	25,704	18,141	2	3	807	794
Virginia	364,055	316,908	15.0%	227,378	201,074	129,086	110,070	79	55	7,512	5,709
West Virginia	12,112	12,417	-2.5%	1,913	1,932	8,809	8,487	0	0	1,391	1,999
East South Central	1,010,560	871,879	16.0%	694,596	595,212	301,053	263,514	1,079	939	13,832	12,214
Alabama	421,586	370,297	14.0%	155,114	132,145	259,291	231,699	0	0	7,181	6,454
Kentucky	113,487	82,170	38.0%	105,040	76,539	7,616	4,669	0	0	831	961
Mississippi	368,214	340,928	8.0%	331,487	311,651	34,009	26,996	40	35	2,678	2,246
Tennessee	107,273	78,484	37.0%	102,955	74,878	136	150	1,040	903	3,142	2,553
West South Central	2,637,243	2,220,941	19.0%	1,009,781	799,652	1,231,936	1,041,646	4,233	4,395	391,292	375,248
Arkansas	148,397	123,423	20.0%	139,217	115,119	7,221	6,467	431	418	1,528	1,419
Louisiana	442,731	423,414	4.6%	266,197	244,478	28,935	29,680	744	598	146,855	148,658
Oklahoma	320,293	230,648	39.0%	205,644	141,484	111,483	87,099	0	0	3,166	2,065
Texas	1,725,822	1,443,455	20.0%	398,722	298,571	1,084,297	918,399	3,058	3,379	239,744	223,106
Mountain	808,494	668,947	21.0%	654,483	522,713	138,452	130,777	2,173	2,243	13,386	13,215
Arizona	285,200	224,548	27.0%	226,923	159,473	57,666	64,454	611	621	0	0
Colorado	122,889	94,180	30.0%	100,913	77,468	21,648	16,355	5	17	322	340
Idaho	24,271	21,694	12.0%	12,610	11,935	11,073	8,989	170	172	419	599
Montana	5,153	4,706	9.5%	3,953	3,700	1,176	987	0	0	24	19
Nevada	198,627	195,341	1.7%	180,440	177,493	15,129	15,110	258	250	2,800	2,489
New Mexico	99,161	75,991	30.0%	67,166	51,075	31,205	24,320	509	581	282	15
Utah	66,844	46,919	42.0%	60,620	40,275	541	549	619	602	5,063	5,493
Wyoming	6,350	5,569	14.0%	1,858	1,294	15	13	0	0	4,477	4,261
Pacific Contiguous	842,767	821,891	2.5%	329,059	322,537	435,397	419,433	11,284	11,812	67,028	68,109
California	646,381	641,500	0.8%	220,039	222,701	349,196	340,121	10,995	11,568	66,150	67,110
Oregon	123,000	103,763	19.0%	60,935	53,213	61,412	49,867	211	173	442	509
Washington	73,386	76,628	-4.2%	48,085	46,622	24,789	29,445	77	71	435	491
Pacific Noncontiguous	25,669	29,216	-12.0%	25,393	28,933	0	0	3	22	273	261
Alaska	25,669	29,216	-12.0%	25,393	28,933	0	0	3	22	273	261
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	10,833,043	9,508,062	14.0%	5,551,181	4,754,893	4,663,935	4,161,984	52,650	50,060	565,276	541,126

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, 2018 and 2017 (Million Cubic Feet)

Census Division and State				Electric Power Sector							
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	11,090	10,719	3.5%	0	0	10,850	10,477	240	242	0	0
Connecticut	266	443	-40.0%	0	0	266	443	0	0	0	0
Maine	688	720	-4.4%	0	0	688	720	0	0	0	0
Massachusetts	4,023	3,665	9.8%	0	0	4,023	3,665	0	0	0	0
New Hampshire	1,699	1,570	8.3%	0	0	1,459	1,328	240	242	0	0
Rhode Island	4,133	4,061	1.8%	0	0	4,133	4,061	0	0	0	0
Vermont	281	260	7.8%	0	0	281	260	0	0	0	0
Middle Atlantic	51,470	53,390	-3.6%	0	0	49,791	51,096	537	799	1,142	1,495
New Jersey	7,398	7,690	-3.8%	0	0	7,243	7,362	155	328	0	0
New York	16,333	16,711	-2.3%	0	0	16,333	16,711	0	0	0	0
Pennsylvania	27,739	28,988	-4.3%	0	0	26,215	27,023	382	471	1,142	1,495
East North Central	62,210	63,452	-2.0%	9,596	7,439	52,076	55,419	283	370	255	224
Illinois	11,915	12,581	-5.3%	2,675	437	9,240	12,143	0	0	0	0
Indiana	8,124	8,109	0.2%	6,922	6,963	1,202	1,145	0	0	0	0
Michigan	20,083	20,649	-2.7%	0	0	20,083	20,649	0	0	0	0
Ohio	11,338	10,972	3.3%	0	0	11,338	10,972	0	0	0	0
Wisconsin	10,751	11,141	-3.5%	0	38	10,213	10,508	283	370	255	224
West North Central	9,885	10,845	-8.9%	3,204	3,497	6,681	7,349	0	0	0	0
Iowa	2,434	2,577	-5.6%	0	0	2,434	2,577	0	0	0	0
Kansas	1,501	1,273	18.0%	0	0	1,501	1,273	0	0	0	0
Minnesota	2,413	3,157	-24.0%	683	708	1,730	2,449	0	0	0	0
Missouri	1,857	2,072	-10.0%	841	1,023	1,016	1,049	0	0	0	0
Nebraska	1,680	1,766	-4.9%	1,680	1,766	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	53,351	53,675	-0.6%	4,154	4,496	45,449	44,827	2,139	2,387	1,609	1,965
Delaware	1,159	1,261	-8.1%	0	0	1,048	1,142	0	0	111	119
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	11,366	10,526	8.0%	1,693	1,615	9,672	8,912	0	0	0	0
Georgia	6,748	6,853	-1.5%	0	0	6,651	6,536	0	0	97	317
Maryland	2,666	2,936	-9.2%	0	0	1,777	1,906	889	1,030	0	0
North Carolina	11,313	11,503	-1.7%	0	0	10,269	10,383	1,044	1,121	0	0
South Carolina	4,155	4,712	-12.0%	2,407	2,803	347	379	0	0	1,401	1,529
Virginia	15,943	15,884	0.4%	54	78	15,684	15,569	205	237	0	0
West Virginia	0	0	--	0	0	0	0	0	0	0	0
East South Central	5,292	5,716	-7.4%	2,363	2,451	2,929	3,265	0	0	0	0
Alabama	824	1,061	-22.0%	0	0	824	1,061	0	0	0	0
Kentucky	2,562	2,710	-5.5%	2,363	2,451	199	259	0	0	0	0
Mississippi	231	221	4.7%	0	0	231	221	0	0	0	0
Tennessee	1,675	1,724	-2.9%	0	0	1,675	1,724	0	0	0	0
West South Central	13,020	14,830	-12.0%	0	0	12,417	14,304	603	526	0	0
Arkansas	1,097	1,513	-27.0%	0	0	1,097	1,513	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	470	455	3.3%	0	0	470	455	0	0	0	0
Texas	11,453	12,863	-11.0%	0	0	10,850	12,336	603	526	0	0
Mountain	6,454	6,592	-2.1%	327	253	5,573	5,881	554	458	0	0
Arizona	950	987	-3.8%	0	0	950	987	0	0	0	0
Colorado	1,360	1,371	-0.8%	0	0	1,360	1,371	0	0	0	0
Idaho	683	1,001	-32.0%	327	253	157	543	199	205	0	0
Montana	0	0	--	0	0	0	0	0	0	0	0
Nevada	1,504	1,589	-5.3%	0	0	1,504	1,589	0	0	0	0
New Mexico	168	21	699.0%	0	0	168	21	0	0	0	0
Utah	1,789	1,623	10.0%	0	0	1,435	1,370	354	253	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	56,662	58,104	-2.5%	3,936	6,938	37,747	36,432	14,634	14,551	346	182
California	48,145	47,912	0.5%	920	2,168	32,654	31,481	14,225	14,081	346	182
Oregon	5,758	5,546	3.8%	1,453	1,382	3,895	3,694	409	470	0	0
Washington	2,760	4,646	-41.0%	1,562	3,389	1,198	1,257	0	0	0	0
Pacific Noncontiguous	801	788	1.7%	0	0	0	0	801	788	0	0
Alaska	801	788	1.7%	0	0	0	0	801	788	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	270,235	278,112	-2.8%	23,580	25,074	223,513	229,050	19,790	20,121	3,352	3,866

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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 5.14. Consumption of Biogenic Municipal Solid Waste for Electricity Generation by State, by Sector, 2018 and 2017 (Thousand Tons)

Census Division and State				Electric Power Sector							
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	3,567,698	3,694,618	-3.4%	0	0	3,393,693	3,489,969	174,005	204,649	0	0
Connecticut	1,142,714	1,245,610	-8.3%	0	0	1,142,714	1,245,610	0	0	0	0
Maine	286,752	315,079	-9.0%	0	0	112,747	110,430	174,005	204,649	0	0
Massachusetts	2,015,957	2,008,372	0.4%	0	0	2,015,957	2,008,372	0	0	0	0
New Hampshire	122,275	125,557	-2.6%	0	0	122,275	125,557	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	5,448,704	5,508,412	-1.1%	0	0	4,292,063	4,332,164	1,156,641	1,176,248	0	0
New Jersey	1,431,562	1,430,402	0.1%	0	0	1,087,763	1,082,402	343,799	348,000	0	0
New York	2,054,078	2,084,883	-1.5%	0	0	1,495,386	1,510,947	558,692	573,936	0	0
Pennsylvania	1,963,064	1,993,127	-1.5%	0	0	1,708,914	1,738,815	254,150	254,312	0	0
East North Central	233,587	234,874	-0.5%	34,080	34,810	0	0	199,507	200,064	0	0
Illinois	0	0	--	0	0	0	0	0	0	0	0
Indiana	19,959	17,911	11.0%	0	0	0	0	19,959	17,911	0	0
Michigan	179,548	182,153	-1.4%	0	0	0	0	179,548	182,153	0	0
Ohio	0	0	--	0	0	0	0	0	0	0	0
Wisconsin	34,080	34,810	-2.1%	34,080	34,810	0	0	0	0	0	0
West North Central	672,132	632,548	6.3%	432,826	387,302	227,847	233,614	11,459	11,632	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	672,132	632,548	6.3%	432,826	387,302	227,847	233,614	11,459	11,632	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	5,700,696	5,107,615	12.0%	0	0	5,248,306	4,586,948	452,390	520,667	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	3,878,338	3,877,326	0.0%	0	0	3,878,338	3,877,326	0	0	0	0
Georgia	0	0	--	0	0	0	0	0	0	0	0
Maryland	648,455	639,456	1.4%	0	0	648,455	639,456	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	1,173,903	590,833	99.0%	0	0	721,513	70,166	452,390	520,667	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	8,805	8,049	9.4%	0	0	0	0	0	0	8,805	8,049
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	0	0	--	0	0	0	0	0	0	0	0
Oklahoma	8,805	8,049	9.4%	0	0	0	0	0	0	8,805	8,049
Texas	0	0	--	0	0	0	0	0	0	0	0
Mountain	0	450	-100.0%	0	0	0	450	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	450	-100.0%	0	0	0	450	0	0	0	0
Wyoming	0	0	--	0	0	0	0	0	0	0	0
Pacific Contiguous	697,555	737,883	-5.5%	0	0	697,555	737,883	0	0	0	0
California	426,524	467,506	-8.8%	0	0	426,524	467,506	0	0	0	0
Oregon	112,909	110,535	2.1%	0	0	112,909	110,535	0	0	0	0
Washington	158,122	159,842	-1.1%	0	0	158,122	159,842	0	0	0	0
Pacific Noncontiguous	454,307	423,913	7.2%	0	0	0	0	454,307	423,913	0	0
Alaska	0	0	--	0	0	0	0	0	0	0	0
Hawaii	454,307	423,913	7.2%	0	0	0	0	454,307	423,913	0	0
U.S. Total	16,783,484	16,348,362	2.7%	466,906	422,112	13,859,464	13,381,028	2,448,309	2,537,173	8,805	8,049

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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, 2008 - 2018

Period	Electric Power Sector			Electric Utilities			Independent Power Producers		
	Coal (Thousand Tons)	Petroluem Liquids (Thousand Barrels)	Petroleum Coke (Thousand Tons)	Coal (Thousand Tons)	Petroluem Liquids (Thousand Barrels)	Petroleum Coke (Thousand Tons)	Coal (Thousand Tons)	Petroluem Liquids (Thousand Barrels)	Petroleum Coke (Thousand Tons)
End of Year Stocks									
2008	161,589	40,483	739	127,463	25,787	468	34,126	14,696	270
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
Year 2016, End of Month Stocks									
January	187,203	31,103	1,320	146,300	19,691	1,089	40,903	11,412	231
February	187,064	30,443	1,323	145,895	19,449	1,064	41,168	10,994	259
March	191,553	30,368	1,240	148,648	19,441	974	42,905	10,927	266
April	193,185	30,579	1,181	150,859	19,716	901	42,327	10,863	280
May	192,417	30,917	1,071	150,639	19,980	826	41,778	10,936	246
June	182,086	30,760	905	144,309	19,901	689	37,777	10,859	216
July	168,119	30,366	858	134,344	19,666	678	33,775	10,700	180
August	158,908	30,324	780	128,256	19,606	589	30,652	10,719	191
September	156,567	30,400	768	127,532	19,686	566	29,035	10,713	201
October	160,932	30,593	813	131,510	19,779	606	29,422	10,813	207
November	170,277	31,244	833	138,091	20,324	606	32,185	10,921	227
December	162,009	30,593	845	130,885	19,767	603	31,124	10,827	241
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

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, 2018 and 2017

Census Division and State	Coal (Thousand Tons)			Petroleum Liquids (Thousand Barrels)			Petroleum Coke (Thousand Tons)		
	December 2018	December 2017	Percentage Change	December 2018	December 2017	Percentage Change	December 2018	December 2017	Percentage Change
New England	605	933	-35.1%	3,385	3,454	-2.0%	0	0	--
Connecticut	W	W	W	1,227	1,248	-1.7%	0	0	--
Maine	0	0	--	197	317	-38.0%	0	0	--
Massachusetts	0	W	W	1,354	1,444	-6.2%	0	0	--
New Hampshire	W	W	W	374	297	25.9%	0	0	--
Rhode Island	W	W	W	195	104	86.6%	0	0	--
Vermont	0	0	--	39	43	-9.5%	0	0	--
Middle Atlantic	3,511	3,876	-9.4%	5,217	5,177	0.8%	0	0	--
New Jersey	W	311	W	644	675	-4.6%	0	0	--
New York	W	W	W	3,234	3,311	-2.3%	0	0	--
Pennsylvania	3,261	W	W	1,338	1,190	12.4%	0	0	--
East North Central	21,289	28,906	-26.3%	1,062	1,143	-7.1%	W	W	W
Illinois	5,209	5,716	-8.9%	69	79	-12.2%	0	0	--
Indiana	6,033	8,427	-28.4%	97	107	-9.6%	W	W	W
Michigan	4,438	6,080	-27.0%	291	342	-14.8%	W	W	W
Ohio	2,797	5,177	-46.0%	411	420	-2.2%	0	W	W
Wisconsin	2,812	3,506	-19.8%	194	196	-0.9%	W	W	W
West North Central	21,125	28,193	-25.1%	895	984	-9.0%	0	0	--
Iowa	3,798	6,840	-44.5%	130	147	-11.3%	0	0	--
Kansas	3,465	4,116	-15.8%	119	122	-2.3%	0	0	--
Minnesota	2,748	3,479	-21.0%	103	142	-27.1%	0	0	--
Missouri	7,177	8,507	-15.6%	366	372	-1.7%	0	0	--
Nebraska	2,218	3,352	-33.8%	105	122	-14.1%	0	0	--
North Dakota	W	W	W	27	29	-8.7%	0	0	--
South Dakota	W	W	W	46	51	-9.4%	0	0	--
South Atlantic	16,726	24,030	-30.4%	11,044	11,916	-7.3%	W	W	W
Delaware	W	W	W	550	411	33.8%	0	0	--
District of Columbia	0	0	--	0	0	--	0	0	--
Florida	3,026	4,239	-28.6%	4,249	5,473	-22.4%	W	107	W
Georgia	3,194	5,116	-37.6%	821	774	6.1%	0	0	--
Maryland	1,536	1,512	1.6%	757	701	8.1%	0	0	--
North Carolina	2,961	4,104	-27.8%	1,234	1,205	2.4%	0	0	--
South Carolina	1,850	4,023	-54.0%	721	677	6.5%	0	0	--
Virginia	582	W	W	2,573	2,545	1.1%	0	0	--
West Virginia	W	3,828	W	139	131	5.8%	W	W	W
East South Central	9,721	12,266	-20.8%	1,146	1,729	-33.7%	0	W	W
Alabama	W	3,049	W	206	198	4.0%	0	0	--
Kentucky	4,881	6,063	-19.5%	231	262	-11.6%	0	W	W
Mississippi	W	911	W	33	489	-93.2%	0	0	--
Tennessee	2,417	2,244	7.7%	675	780	-13.4%	0	0	--
West South Central	13,146	19,583	-32.9%	1,324	1,675	-21.0%	W	W	W
Arkansas	2,297	2,972	-22.7%	168	181	-7.2%	0	0	--
Louisiana	1,867	2,297	-18.7%	223	384	-41.8%	W	W	W
Oklahoma	2,988	4,332	-31.0%	95	106	-9.9%	0	0	--
Texas	5,994	9,981	-39.9%	837	1,005	-16.7%	0	0	--
Mountain	15,671	18,782	-16.6%	385	410	-6.0%	W	W	W
Arizona	2,525	3,015	-16.3%	136	138	-1.1%	0	0	--
Colorado	3,964	4,388	-9.7%	127	140	-9.4%	0	0	--
Idaho	0	0	--	0	0	-28.0%	0	0	--
Montana	W	W	W	36	20	83.6%	W	W	W
Nevada	W	W	W	2	3	-42.2%	0	0	--
New Mexico	W	W	W	28	37	-24.5%	0	0	--
Utah	3,252	4,589	-29.1%	26	33	-21.9%	0	0	--
Wyoming	3,783	4,316	-12.4%	30	39	-22.7%	0	0	--
Pacific Contiguous	W	W	W	352	338	4.1%	0	0	--
California	0	0	--	176	159	10.4%	0	0	--
Oregon	W	W	W	80	77	4.6%	0	0	--
Washington	W	W	W	96	103	-6.1%	0	0	--
Pacific Noncontiguous	W	W	W	1,168	1,263	-7.6%	0	0	--
Alaska	W	W	W	245	266	-7.8%	0	0	--
Hawaii	W	W	W	923	997	-7.5%	0	0	--
U.S. Total	102,793	137,687	-25.3%	25,977	28,089	-7.5%	539	864	-37.5%

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, 2018 and 2017**

	Electric Power Sector			Electric Utilities		Independent Power Producers	
Census Division	December 2018	December 2017	Percentage Change	December 2018	December 2017	December 2018	December 2017
Coal (Thousand Tons)							
New England	605	933	-35.1%	W	W	W	W
Middle Atlantic	3,511	3,876	-9.4%	0	W	3,511	W
East North Central	21,289	28,906	-26.3%	W	19,532	W	9,374
West North Central	21,125	28,193	-25.1%	21,125	28,193	0	0
South Atlantic	16,726	24,030	-30.4%	14,437	21,746	2,289	2,284
East South Central	9,721	12,266	-20.8%	9,721	12,266	0	0
West South Central	13,146	19,583	-32.9%	9,738	14,040	3,407	5,543
Mountain	15,671	18,782	-16.6%	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	102,793	137,687	-25.3%	84,728	114,782	18,065	22,905
Petroleum Liquids (Thousand Barrels)							
New England	3,385	3,454	-2.0%	520	589	2,865	2,865
Middle Atlantic	5,217	5,177	0.8%	1,833	2,008	3,384	3,168
East North Central	1,062	1,143	-7.1%	709	788	353	356
West North Central	895	984	-9.0%	868	957	27	26
South Atlantic	11,044	11,916	-7.3%	8,803	9,891	2,241	2,025
East South Central	1,146	1,729	-33.7%	1,061	1,656	85	73
West South Central	1,324	1,675	-21.0%	1,026	1,314	297	361
Mountain	385	410	-6.0%	338	378	47	32
Pacific Contiguous	352	338	4.1%	273	235	80	104
Pacific Noncontiguous	1,168	1,263	-7.6%	1,123	1,231	44	32
U.S. Total	25,977	28,089	-7.5%	16,553	19,047	9,423	9,041
Petroleum Coke (Thousand Tons)							
New England	0	0	--	0	0	0	0
Middle Atlantic	0	0	--	0	0	0	0
East North Central	W	W	W	W	W	0	W
West North Central	0	0	--	0	0	0	0
South Atlantic	W	W	W	W	107	W	W
East South Central	0	W	W	0	W	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	539	864	-37.5%	521	692	19	171

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, 2008 - 2018
(Thousand Tons)

		Electric Power Sector			
Period		Bituminous Coal	Subbituminous Coal	Lignite Coal	Total
End of Year Stocks					
2008		65,818	91,214	4,556	161,589
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
Year 2016, End of Month Stocks					
January		76,919	105,641	4,643	187,203
February		76,373	106,153	4,537	187,064
March		79,664	107,076	4,813	191,553
April		81,390	106,720	5,075	193,185
May		82,185	105,068	5,164	192,417
June		78,216	98,822	5,048	182,086
July		71,287	92,104	4,727	168,119
August		67,462	87,040	4,406	158,908
September		65,962	86,411	4,194	156,567
October		67,250	89,666	4,016	160,932
November		70,537	95,428	4,313	170,277
December		67,241	90,376	4,393	162,009
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

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, 2008 through 2018

	Coal				Petroleum				Natural Gas		All Fossil Fuels
			Average Cost				Average Cost			Average Cost	Average Cost
Period	Receipts (Thousand Tons)	Average Sulfur Percent by Weight	(Dollars per MMBtu)	(Dollars per Ton)	Receipts (Thousand Barrels)	Average Sulfur Percent by Weight	(Dollars per MMBtu)	(Dollars per Barrel)	Receipts (Thousand Mcf)	(Dollars per MMBtu)	(Dollars per MMBtu)
2008	1,069,709	0.97	2.07	41.14	96,341	2.21	10.87	64.89	7,879,046	9.02	4.11
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

* = 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, 2008 through 2018

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
2008	464,362	1.68	10.6	522,228	0.34	5.8	68,945	0.86	13.8
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

* = 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.
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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 7.3. Average Quality of Fossil Fuel Receipts for the Electric Power Industry, 2008 through 2018

	Coal			Petroleum			Natural Gas
Period	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
2008	9,947	0.97	9.0	142,205	2.21	0.3	1,027
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

* = 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.

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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 7.4. Weighted Average Cost of Fossil Fuels for the Electric Power Industry, 2008 through 2018

	Coal								Petroleum		Natural Gas		Total Fossil	
	Bituminous		Subbituminous		Lignite		All Coal Ranks							
Period	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)
2008	11,119	2.50	9,087	1.62	896	1.41	21,280	2.07	575	10.87	8,089	9.02	29,945	4.11
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

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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 - 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.

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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, 2008 - 2018

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												
2008	15,347,396	764,399	2.06	41.32	0.93	100.5	240,937	38,891	15.83	98.09	0.60	99.7
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
Year 2016												
January	750,914	39,064	2.17	41.71	1.18	85.5	6,190	1,022	7.88	47.74	0.44	58.8
February	722,024	37,129	2.16	41.95	1.23	98.2	5,814	955	6.92	42.16	0.41	64.1
March	685,422	34,609	2.19	43.49	1.34	110.9	5,223	851	6.69	41.07	0.40	77.5
April	612,742	30,953	2.19	43.39	1.31	107.4	6,897	1,126	8.35	51.19	0.37	106.4
May	655,166	33,408	2.17	42.60	1.25	98.5	6,742	1,114	9.12	55.16	0.40	91.7
June	775,536	39,900	2.15	41.79	1.24	85.9	5,511	908	10.51	63.80	0.44	70.9
July	849,005	43,981	2.17	41.99	1.15	81.1	7,117	1,142	11.54	71.91	0.52	66.7
August	925,332	47,610	2.17	42.19	1.19	88.3	6,737	1,090	9.15	56.57	0.51	66.2
September	851,137	43,822	2.18	42.34	1.18	97.6	5,514	896	9.00	55.39	0.49	79.2
October	842,651	43,693	2.12	40.99	1.16	110.5	5,205	851	9.80	59.94	0.52	73.4
November	805,502	41,615	2.13	41.25	1.20	117.8	6,780	1,106	9.80	60.07	0.48	88.2
December	781,447	40,423	2.13	41.17	1.21	85.4	5,565	925	10.71	64.43	0.44	65.2
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

Displayed values of zero may represent small values that round to zero.
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Notes:
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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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Table 7.6. Receipts, Average Cost, and Quality of Fossil Fuels: Electric Utilities, 2008 - 2018 (continued)

	Petroleum Coke						Natural Gas						All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost	
Period	(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													
2008	80,987	2,843	2.13	60.51	5.36	123.8	2,856,354	2,784,642	9.15	9.39	102.0	3.33	
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	
Year 2016													
January	7,935	278	1.15	32.96	5.67	91.8	394,925	382,074	3.27	3.38	97.1	2.57	
February	9,837	356	1.13	31.18	5.53	131.0	356,803	344,669	2.96	3.06	96.8	2.43	
March	8,402	294	1.21	34.47	5.28	103.8	383,424	371,055	2.53	2.61	97.4	2.33	
April	8,436	300	1.14	31.95	5.58	92.1	367,155	355,539	2.72	2.80	97.6	2.42	
May	7,842	281	1.22	34.16	5.35	94.9	412,465	399,342	2.68	2.77	97.4	2.40	
June	6,325	220	1.33	38.34	4.59	71.4	501,782	485,899	2.88	2.97	96.9	2.46	
July	9,587	340	1.43	40.50	5.10	104.6	571,042	552,828	3.20	3.31	96.5	2.62	
August	9,306	335	1.62	45.01	5.45	99.4	571,170	551,024	3.23	3.34	96.9	2.59	
September	9,059	320	2.00	56.51	5.12	102.8	457,872	442,147	3.43	3.55	97.3	2.64	
October	7,088	253	1.87	52.47	5.71	146.9	370,666	358,541	3.53	3.65	96.7	2.58	
November	7,871	279	2.22	62.85	5.74	116.3	339,777	328,019	3.36	3.48	97.4	2.54	
December	8,017	284	1.99	56.17	5.39	108.8	348,255	336,401	4.15	4.30	97.0	2.78	
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	

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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 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, 2008 - 2018

	Coal						Petroleum Liquids					
	Receipts		Average Cost				Receipts		Average Cost			
Period	(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												
2008	5,395,142	281,258	2.03	38.98	1.04	100.4	82,124	13,657	16.30	98.03	0.41	94.4
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
Year 2016												
January	264,906	14,431	1.94	35.56	1.72	87.7	2,670	459	7.86	45.79	0.42	64.8
February	241,497	12,970	1.92	35.76	1.91	101.0	1,867	313	6.94	41.57	0.47	42.4
March	192,217	10,216	2.04	38.36	1.89	117.0	1,484	256	7.49	43.48	0.47	66.8
April	178,203	9,323	1.99	38.00	1.97	90.2	1,473	252	8.28	48.34	0.50	74.9
May	200,347	10,560	2.08	39.52	2.05	94.7	2,331	396	11.84	69.75	0.48	98.3
June	228,760	12,535	1.87	34.19	1.72	74.5	1,842	312	10.09	59.54	0.47	82.9
July	288,156	15,689	1.89	34.68	1.67	78.4	1,828	310	12.96	76.40	0.45	58.9
August	309,421	16,607	1.89	35.21	1.71	83.3	2,262	383	10.26	60.58	0.48	69.4
September	289,363	15,859	1.91	34.96	1.65	90.6	2,478	420	10.16	59.98	0.49	92.3
October	280,681	15,236	1.88	34.66	1.62	101.0	2,885	492	10.39	61.12	0.49	111.5
November	276,435	15,051	1.91	35.16	1.53	117.1	2,652	446	10.79	64.16	0.47	115.5
December	297,372	16,171	1.91	35.08	1.60	91.6	2,202	370	10.76	64.01	0.50	65.7
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

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Notes:
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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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Table 7.8. Receipts, Average Cost, and Quality of Fossil Fuels: Independent Power Producers, 2008 - 2018 (continued)

	Petroleum Coke						Natural Gas						All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost	
Period	(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													
2008	79,122	2,788	1.47	41.85	4.63	98.8	4,061,830	3,956,155	8.93	9.17	100.5	5.07	
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	
Year 2016													
January	1,305	49	2.50	66.52	5.70	182.6	366,954	353,940	2.80	2.91	93.1	2.41	
February	1,314	47	2.50	69.23	5.44	97.1	322,866	312,018	2.43	2.52	93.5	2.20	
March	1,337	48	2.50	69.56	5.37	65.3	353,542	341,974	1.89	1.95	94.0	1.97	
April	1,203	44	2.50	68.64	5.30	88.5	345,599	334,192	2.07	2.14	94.3	2.06	
May	506	18	2.50	70.60	5.28	30.6	384,972	373,040	2.04	2.11	94.6	2.10	
June	348	12	2.50	70.36	5.32	20.5	457,044	442,942	2.41	2.49	94.4	2.22	
July	223	8	2.50	70.91	5.67	12.1	552,956	535,139	2.66	2.75	94.4	2.38	
August	1,510	55	2.50	68.75	5.24	77.3	569,120	549,584	2.62	2.71	94.3	2.34	
September	1,483	53	2.50	69.56	5.43	90.7	448,820	433,556	2.61	2.70	94.1	2.32	
October	1,549	56	2.50	68.82	5.59	78.5	362,466	350,675	2.60	2.69	94.0	2.28	
November	1,294	47	2.50	69.55	5.43	83.4	313,867	304,227	2.59	2.67	93.5	2.27	
December	1,501	55	2.50	68.05	5.50	84.2	313,521	303,233	3.83	3.95	93.6	2.82	
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	

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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:

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 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, 2008 - 2018

	Coal						Petroleum Liquids					
	Receipts		Average Cost				Receipts		Average Cost			
Period	(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												
2008	43,997	2,009	2.65	58.12	1.73	99.4	3,800	633	17.84	107.10	0.37	102.0
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
Year 2016												
January	139	6	2.70	61.16	2.87	8.1	0	0	--	--	--	0.0
February	124	5	2.70	61.18	2.84	7.2	0	0	--	--	--	0.0
March	163	7	2.70	61.02	3.03	9.7	0	0	--	--	--	0.0
April	9	0	2.65	60.00	2.98	0.9	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	92	4	2.68	60.89	3.09	8.2	0	0	--	--	--	0.0
September	153	7	2.68	60.94	3.14	13.5	0	0	--	--	--	0.0
October	159	7	2.68	60.76	3.15	14.1	0	0	--	--	--	0.0
November	237	10	2.68	60.68	3.04	17.6	0	0	--	--	--	0.0
December	214	9	2.68	60.81	3.05	12.5	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

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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: Commerical Sector, 2008 - 2018 (continued)

	Petroleum Coke						Natural Gas					All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost
Period	(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												
2008	370	14	2.14	58.36	5.53	135.3	71,670	69,877	9.01	9.24	105.5	6.94
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
Year 2016												
January	0	0	--	--	--	0.0	1,241	1,203	3.68	3.79	11.3	3.58
February	0	0	--	--	--	0.0	488	477	3.85	3.94	4.9	3.62
March	0	0	--	--	--	0.0	620	610	3.86	3.93	6.2	3.62
April	0	0	--	--	--	0.0	578	567	3.82	3.89	6.1	3.80
May	0	0	--	--	--	0.0	599	587	3.82	3.89	6.1	3.82
June	0	0	--	--	--	0.0	599	585	3.82	3.91	5.3	3.82
July	0	0	--	--	--	0.0	691	667	3.76	3.89	5.0	3.76
August	0	0	--	--	--	0.0	802	765	3.80	3.98	5.6	3.68
September	0	0	--	--	--	0.0	610	591	3.92	4.05	5.3	3.68
October	0	0	--	--	--	0.0	598	575	3.98	4.13	5.9	3.70
November	0	0	--	--	--	0.0	613	589	4.09	4.26	6.8	3.70
December	0	0	--	--	--	0.0	568	549	4.05	4.18	5.3	3.67
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

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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:
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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- 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 7.11. Receipts, Average Cost, and Quality of Fossil Fuels: Industrial Sector, 2008 - 2018

	Coal						Petroleum Liquids					
	Receipts		Average Cost				Receipts		Average Cost			
Period	(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												
2008	493,724	22,044	2.72	60.96	1.28	100.7	48,822	7,958	12.50	76.69	1.01	109.0
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
Year 2016												
January	19,357	897	2.69	58.07	1.36	64.2	237	38	11.34	71.47	1.49	18.7
February	17,418	814	2.68	57.44	1.42	63.5	342	55	8.70	53.76	1.16	19.8
March	19,181	888	2.77	59.80	1.29	69.7	205	33	8.74	54.10	1.18	18.5
April	16,048	739	2.69	58.41	1.43	68.7	222	36	9.38	57.17	1.36	20.8
May	16,376	761	2.67	57.42	1.39	64.6	158	26	11.79	72.81	1.49	11.7
June	18,607	865	2.66	57.25	1.25	69.6	259	42	10.38	64.15	1.45	21.3
July	18,586	875	2.64	56.18	1.23	66.2	85	14	11.10	68.65	1.14	7.1
August	19,629	929	2.64	55.84	1.16	71.9	119	19	11.84	73.14	1.11	12.4
September	16,052	753	2.67	56.87	1.20	65.1	162	27	11.67	71.25	1.12	16.5
October	18,491	879	2.64	55.55	1.25	78.1	297	48	10.34	63.78	1.20	25.7
November	14,936	701	2.62	55.77	1.27	64.1	283	47	10.57	63.80	1.30	30.7
December	16,067	759	2.61	55.34	1.33	59.3	172	28	13.49	83.67	1.12	18.0
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

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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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Table 7.12. Receipts, Average Cost, and Quality of Fossil Fuels: Industrial Sector, 2008 - 2018 (continued)

	Petroleum Coke						Natural Gas						All Fossil Fuels
	Receipts		Average Cost				Receipts		Average Cost			Average Cost	
Period	(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													
2008	39,246	1,396	3.34	93.84	4.92	117.9	1,099,613	1,068,372	8.95	9.22	111.9	7.10	
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	
Year 2016													
January	400	15	2.18	59.67	5.94	15.3	63,059	61,034	2.47	2.55	59.0	2.55	
February	122	4	1.77	49.53	6.10	4.3	56,120	54,342	2.28	2.35	57.2	2.40	
March	574	21	1.92	52.02	5.88	23.8	60,020	58,279	1.96	2.01	58.9	2.17	
April	669	25	1.97	53.48	5.81	31.0	60,005	58,224	2.21	2.28	61.3	2.33	
May	206	8	2.00	52.87	5.64	7.0	59,608	57,927	2.15	2.21	59.3	2.28	
June	222	8	1.89	53.54	5.94	7.0	60,985	59,247	2.43	2.50	58.7	2.50	
July	222	8	1.88	53.32	5.94	7.0	64,456	62,488	2.93	3.02	58.3	2.87	
August	217	8	2.04	55.00	5.81	7.2	64,784	62,548	2.87	2.97	57.7	2.83	
September	200	8	2.11	54.50	5.64	9.6	61,346	59,335	3.01	3.11	58.7	2.95	
October	207	8	2.06	54.37	5.66	7.9	62,185	60,320	3.08	3.18	60.7	3.01	
November	200	8	2.10	54.36	5.47	7.0	64,265	62,438	2.81	2.89	63.4	2.80	
December	427	16	2.01	54.48	5.99	15.4	67,201	65,176	3.49	3.60	62.7	3.34	
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	

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, 2018 and 2017
(Thousand Tons)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	276	198	40.0%	94	45	182	153	0	0	0	0
Connecticut	105	0	--	0	0	105	0	0	0	0	0
Maine	62	66	-6.0%	0	0	62	66	0	0	0	0
Massachusetts	0	87	-100.0%	0	0	0	87	0	0	0	0
New Hampshire	94	45	109.0%	94	45	0	0	0	0	0	0
Rhode Island	15	0	--	0	0	15	0	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	22,115	23,135	-4.4%	0	119	22,007	22,734	0	0	108	282
New Jersey	603	656	-8.1%	0	0	603	656	0	0	0	0
New York	356	281	27.0%	0	0	347	109	0	0	9	172
Pennsylvania	21,156	22,198	-4.7%	0	119	21,057	21,968	0	0	99	110
East North Central	135,418	138,487	-2.2%	79,529	84,753	53,644	51,281	0	0	2,244	2,452
Illinois	42,205	40,231	4.9%	7,544	7,794	32,505	30,210	0	0	2,156	2,227
Indiana	29,773	28,961	2.8%	27,733	27,465	2,040	1,496	0	0	0	0
Michigan	22,395	23,611	-5.1%	22,146	23,331	241	272	0	0	9	8
Ohio	22,772	25,965	-12.0%	3,914	6,662	18,858	19,303	0	0	0	0
Wisconsin	18,272	19,719	-7.3%	18,193	19,502	0	0	0	0	80	217
West North Central	115,190	116,890	-1.5%	111,951	113,553	0	0	13	24	3,226	3,313
Iowa	15,309	15,347	-0.3%	13,080	13,186	0	0	0	0	2,228	2,162
Kansas	12,592	12,272	2.6%	12,592	12,272	0	0	0	0	0	0
Minnesota	12,904	12,946	-0.3%	12,725	12,569	0	0	0	0	178	377
Missouri	35,275	37,752	-6.6%	35,262	37,728	0	0	13	24	0	0
Nebraska	13,527	13,654	-0.9%	12,708	12,880	0	0	0	0	819	774
North Dakota	24,023	23,540	2.0%	24,023	23,540	0	0	0	0	0	0
South Dakota	1,560	1,379	13.0%	1,560	1,379	0	0	0	0	0	0
South Atlantic	79,146	88,271	-10.0%	66,966	76,688	11,281	10,561	0	0	899	1,022
Delaware	35	200	-82.0%	0	0	35	200	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	11,702	15,139	-23.0%	11,625	14,947	0	26	0	0	77	167
Georgia	14,953	16,943	-12.0%	14,814	16,832	0	0	0	0	139	111
Maryland	4,637	3,851	20.0%	0	0	4,450	3,652	0	0	188	198
North Carolina	11,130	13,214	-16.0%	10,761	12,832	119	90	0	0	251	292
South Carolina	6,077	6,499	-6.5%	6,067	6,473	0	0	0	0	11	26
Virginia	4,705	5,520	-15.0%	3,760	4,662	710	631	0	0	235	228
West Virginia	25,906	26,906	-3.7%	19,939	20,943	5,967	5,963	0	0	0	0
East South Central	57,134	59,231	-3.5%	53,298	55,871	2,993	2,417	0	0	843	943
Alabama	14,648	15,754	-7.0%	14,648	15,754	0	0	0	0	0	0
Kentucky	32,038	31,490	1.7%	32,038	31,490	0	0	0	0	0	0
Mississippi	4,600	3,845	20.0%	1,607	1,428	2,993	2,417	0	0	0	0
Tennessee	5,848	8,142	-28.0%	5,005	7,199	0	0	0	0	843	943
West South Central	98,713	120,958	-18.0%	49,892	56,200	48,517	64,327	0	0	304	431
Arkansas	16,843	14,285	18.0%	14,003	12,442	2,762	1,776	0	0	78	67
Louisiana	7,252	8,029	-9.7%	4,736	5,025	2,515	3,003	0	0	0	0
Oklahoma	8,774	10,586	-17.0%	7,436	9,180	1,112	1,043	0	0	226	364
Texas	65,845	88,058	-25.0%	23,717	29,553	42,128	58,506	0	0	0	0
Mountain	82,404	89,478	-7.9%	73,210	79,315	9,194	10,052	0	0	0	111
Arizona	16,162	16,406	-1.5%	16,162	16,406	0	0	0	0	0	0
Colorado	14,505	16,284	-11.0%	14,505	16,284	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	7,971	8,759	-9.0%	239	215	7,731	8,544	0	0	0	0
Nevada	1,167	743	57.0%	582	182	585	561	0	0	0	0
New Mexico	7,520	10,608	-29.0%	7,520	10,608	0	0	0	0	0	0
Utah	10,975	11,981	-8.4%	10,570	11,458	405	412	0	0	0	111
Wyoming	24,104	24,697	-2.4%	23,632	24,161	472	535	0	0	0	0
Pacific Contiguous	4,833	4,815	0.4%	764	877	3,469	3,313	0	0	600	625
California	600	625	-3.9%	0	0	0	0	0	0	600	625
Oregon	764	877	-13.0%	764	877	0	0	0	0	0	0
Washington	3,469	3,313	4.7%	0	0	3,469	3,313	0	0	0	0
Pacific Noncontiguous	987	902	9.5%	260	173	727	728	0	0	0	0
Alaska	260	173	50.0%	260	173	0	0	0	0	0	0
Hawaii	727	728	-0.2%	0	0	727	728	0	0	0	0
U.S. Total	596,215	642,364	-7.2%	435,964	467,595	152,015	165,567	13	24	8,224	9,178

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Notes:
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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, 2018 and 2017
(Thousand Barrels)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	1,724	502	243.0%	238	24	1,486	478	0	0	0	0
Connecticut	395	30	NM	0	0	395	30	0	0	0	0
Maine	298	178	68.0%	0	0	298	178	0	0	0	0
Massachusetts	487	189	158.0%	33	10	454	179	0	0	0	0
New Hampshire	365	80	358.0%	206	14	160	66	0	0	0	0
Rhode Island	179	27	573.0%	0	0	179	27	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	3,888	1,159	236.0%	1,041	210	2,751	860	0	0	96	88
New Jersey	264	18	NM	0	0	264	18	0	0	0	0
New York	2,437	714	241.0%	1,041	210	1,375	483	0	0	21	21
Pennsylvania	1,187	426	178.0%	0	0	1,112	359	0	0	75	67
East North Central	875	888	-1.6%	497	512	347	352	0	0	30	24
Illinois	98	116	-15.0%	6	5	92	111	0	0	0	0
Indiana	208	203	2.5%	207	201	1	2	0	0	0	0
Michigan	159	154	3.4%	151	144	0	0	0	0	8	9
Ohio	323	363	-11.0%	58	110	244	238	0	0	21	15
Wisconsin	86	53	61.0%	76	52	11	1	0	0	0	0
West North Central	575	453	27.0%	572	453	3	0	0	0	0	0
Iowa	117	101	15.0%	117	101	0	0	0	0	0	0
Kansas	105	115	-9.3%	105	115	0	0	0	0	0	0
Minnesota	51	49	3.8%	48	49	3	0	0	0	0	0
Missouri	206	108	90.0%	206	108	0	0	0	0	0	0
Nebraska	9	5	69.0%	9	5	0	0	0	0	0	0
North Dakota	77	69	11.0%	77	69	0	0	0	0	0	0
South Dakota	11	5	133.0%	11	5	0	0	0	0	0	0
South Atlantic	5,402	3,222	68.0%	3,750	2,622	1,410	423	0	0	242	178
Delaware	331	19	NM	0	0	331	19	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	495	1,447	-66.0%	445	1,407	0	0	0	0	51	40
Georgia	458	253	81.0%	325	162	72	19	0	0	61	73
Maryland	628	233	170.0%	0	0	628	233	0	0	0	0
North Carolina	1,130	340	232.0%	1,023	290	48	18	0	0	59	32
South Carolina	623	148	321.0%	580	130	0	0	0	0	43	18
Virginia	1,439	601	140.0%	1,123	451	288	135	0	0	28	15
West Virginia	299	182	64.0%	254	182	44	0	0	0	0	0
East South Central	511	368	39.0%	427	355	79	6	0	0	5	6
Alabama	144	51	184.0%	65	44	79	6	0	0	0	0
Kentucky	147	169	-13.0%	147	169	0	0	0	0	0	0
Mississippi	37	15	146.0%	37	15	0	0	0	0	0	0
Tennessee	183	133	38.0%	178	126	0	0	0	0	5	6
West South Central	188	231	-19.0%	151	132	36	99	0	0	0	0
Arkansas	48	81	-41.0%	35	36	13	45	0	0	0	0
Louisiana	27	6	357.0%	27	6	0	0	0	0	0	0
Oklahoma	30	18	65.0%	30	18	0	0	0	0	0	0
Texas	82	126	-35.0%	59	71	23	54	0	0	0	0
Mountain	298	351	-15.0%	266	322	32	29	0	0	0	0
Arizona	94	89	5.7%	94	89	0	0	0	0	0	0
Colorado	14	5	177.0%	14	5	0	0	0	0	0	0
Idaho	0	0	--	0	0	0	0	0	0	0	0
Montana	25	19	29.0%	0	0	25	19	0	0	0	0
Nevada	20	18	15.0%	15	11	5	7	0	0	0	0
New Mexico	34	72	-52.0%	34	72	0	0	0	0	0	0
Utah	56	66	-16.0%	54	63	2	3	0	0	0	0
Wyoming	55	82	-33.0%	55	82	0	0	0	0	0	0
Pacific Contiguous	20	35	-44.0%	5	18	15	17	0	0	0	0
California	0	0	--	0	0	0	0	0	0	0	0
Oregon	0	14	-100.0%	0	14	0	0	0	0	0	0
Washington	20	22	-8.7%	5	4	15	17	0	0	0	0
Pacific Noncontiguous	8,810	8,917	-1.2%	6,948	6,993	1,862	1,924	0	0	0	0
Alaska	14	1	835.0%	14	1	0	0	0	0	0	0
Hawaii	8,796	8,916	-1.3%	6,935	6,992	1,862	1,924	0	0	0	0
U.S. Total	22,290	16,127	38.0%	13,896	11,640	8,022	4,190	0	0	372	297

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Notes:
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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, 2018 and 2017
(Thousand Tons)

Census Division and State	Electric Power Sector										
	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
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	599	559	7.2%	599	559	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	539	504	6.8%	539	504	0	0	0	0	0	0
Ohio	0	0	--	0	0	0	0	0	0	0	0
Wisconsin	60	54	10.0%	60	54	0	0	0	0	0	0
West North Central	71	85	-17.0%	0	0	0	0	0	0	71	85
Iowa	71	85	-17.0%	0	0	0	0	0	0	71	85
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	784	663	18.0%	784	663	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	784	663	18.0%	784	663	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	117	-100.0%	0	117	0	0	0	0	0	0
Alabama	0	0	--	0	0	0	0	0	0	0	0
Kentucky	0	117	-100.0%	0	117	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	1,557	1,885	-17.0%	1,557	1,885	0	0	0	0	0	0
Arkansas	0	0	--	0	0	0	0	0	0	0	0
Louisiana	1,557	1,885	-17.0%	1,557	1,885	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	3,010	3,309	-9.0%	2,940	3,224	0	0	0	0	71	85

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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, 2018 and 2017
(Million Cubic Feet)

				Electric Power Sector							
Census Division and State	All Sectors			Electric Utilities		Independent Power Producers		Commercial Sector		Industrial Sector	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	357,295	352,098	1.5%	1,348	1,455	355,948	350,643	0	0	0	0
Connecticut	132,334	103,957	27.0%	0	0	132,334	103,957	0	0	0	0
Maine	13,614	13,735	-0.9%	0	0	13,614	13,735	0	0	0	0
Massachusetts	132,566	157,628	-16.0%	947	1,055	131,619	156,573	0	0	0	0
New Hampshire	21,600	26,062	-17.0%	400	400	21,199	25,662	0	0	0	0
Rhode Island	57,181	50,716	13.0%	0	0	57,181	50,716	0	0	0	0
Vermont	0	0	--	0	0	0	0	0	0	0	0
Middle Atlantic	1,176,917	1,122,972	4.8%	92,273	84,110	1,074,141	1,034,150	0	0	10,503	4,711
New Jersey	278,523	268,581	3.7%	0	0	278,523	268,581	0	0	0	0
New York	382,447	350,206	9.2%	92,273	84,110	282,569	263,642	0	0	7,605	2,454
Pennsylvania	515,948	504,185	2.3%	0	0	513,049	501,928	0	0	2,899	2,257
East North Central	980,851	736,347	33.0%	345,229	260,580	614,152	455,532	6,707	5,952	14,763	14,283
Illinois	128,983	107,309	20.0%	9,674	7,779	119,272	99,475	0	0	37	54
Indiana	182,600	122,867	49.0%	87,691	54,979	94,909	67,888	0	0	0	0
Michigan	231,528	198,703	17.0%	68,184	55,318	150,349	131,445	6,707	5,952	6,288	5,988
Ohio	316,263	206,172	53.0%	71,616	53,674	238,899	147,666	0	0	5,748	4,831
Wisconsin	121,477	101,296	20.0%	108,063	88,829	10,722	9,057	0	0	2,691	3,410
West North Central	225,291	171,237	32.0%	195,270	148,131	22,828	17,324	2,116	1,641	5,079	4,141
Iowa	64,610	49,009	32.0%	59,608	45,009	0	0	0	0	5,002	4,000
Kansas	23,736	17,988	32.0%	23,736	17,988	0	0	0	0	0	0
Minnesota	55,926	45,644	23.0%	47,747	36,715	8,093	8,782	10	7	77	140
Missouri	54,787	40,569	35.0%	37,946	30,393	14,735	8,542	2,106	1,634	0	0
Nebraska	9,068	6,035	50.0%	9,068	6,035	0	0	0	0	0	0
North Dakota	9,873	7,226	37.0%	9,873	7,226	0	0	0	0	0	0
South Dakota	7,291	4,765	53.0%	7,291	4,765	0	0	0	0	0	0
South Atlantic	2,622,122	2,370,929	11.0%	2,144,723	1,950,240	440,969	385,848	0	0	36,430	34,841
Delaware	33,332	42,418	-21.0%	0	0	33,332	42,418	0	0	0	0
District of Columbia	0	0	--	0	0	0	0	0	0	0	0
Florida	1,229,395	1,153,819	6.6%	1,178,822	1,111,591	46,251	40,092	0	0	4,322	2,135
Georgia	380,482	378,227	0.6%	284,740	280,741	86,922	88,413	0	0	8,821	9,074
Maryland	92,375	46,548	98.0%	22,077	0	67,520	44,107	0	0	2,778	2,441
North Carolina	331,999	279,167	19.0%	280,625	239,655	48,593	37,436	0	0	2,781	2,075
South Carolina	169,867	131,328	29.0%	147,310	113,766	21,601	16,308	0	0	956	1,254
Virginia	367,368	320,733	15.0%	229,292	202,464	127,744	108,595	0	0	10,332	9,674
West Virginia	17,306	18,689	-7.4%	1,858	2,023	9,007	8,479	0	0	6,440	8,187
East South Central	1,007,842	886,080	14.0%	685,293	602,975	302,245	264,995	0	0	20,304	18,110
Alabama	398,878	364,506	9.4%	138,322	131,177	260,556	233,329	0	0	0	0
Kentucky	112,670	81,265	39.0%	105,054	76,497	7,616	4,769	0	0	0	0
Mississippi	370,210	346,830	6.7%	336,137	319,933	34,073	26,897	0	0	0	0
Tennessee	126,084	93,479	35.0%	105,779	75,369	0	0	0	0	20,304	18,110
West South Central	3,009,544	2,633,752	14.0%	980,145	779,185	1,376,247	1,183,929	0	0	653,152	670,638
Arkansas	150,505	126,300	19.0%	134,446	112,269	13,448	11,930	0	0	2,612	2,101
Louisiana	500,434	535,301	-6.5%	256,687	237,120	34,679	34,771	0	0	209,068	263,411
Oklahoma	318,549	230,111	38.0%	204,417	140,961	109,692	86,876	0	0	4,440	2,274
Texas	2,040,056	1,742,040	17.0%	384,596	288,836	1,218,428	1,050,352	0	0	437,032	402,852
Mountain	740,594	622,145	19.0%	623,305	510,586	116,686	110,246	0	0	604	1,312
Arizona	278,303	224,021	24.0%	220,964	159,622	57,340	64,399	0	0	0	0
Colorado	118,141	90,410	31.0%	99,700	76,803	18,441	13,606	0	0	0	0
Idaho	19,987	19,169	4.3%	8,914	10,181	11,073	8,989	0	0	0	0
Montana	2,749	3,157	-13.0%	2,737	3,140	12	17	0	0	0	0
Nevada	180,683	178,129	1.4%	180,683	178,129	0	0	0	0	0	0
New Mexico	82,962	68,683	21.0%	53,157	45,461	29,805	23,222	0	0	0	0
Utah	55,974	37,307	50.0%	55,369	35,995	0	0	0	0	604	1,312
Wyoming	1,796	1,268	42.0%	1,782	1,255	15	13	0	0	0	0
Pacific Contiguous	748,670	717,877	4.3%	295,237	288,268	424,478	398,905	0	0	28,955	30,705
California	559,705	556,012	0.7%	189,598	202,241	341,152	323,067	0	0	28,955	30,705
Oregon	123,735	94,868	30.0%	62,606	45,243	61,129	49,625	0	0	0	0
Washington	65,229	66,997	-2.6%	43,033	40,784	22,197	26,213	0	0	0	0
Pacific Noncontiguous	16,636	15,297	8.8%	16,636	15,297	0	0	0	0	0	0
Alaska	16,636	15,297	8.8%	16,636	15,297	0	0	0	0	0	0
Hawaii	0	0	--	0	0	0	0	0	0	0	0
U.S. Total	10,885,764	9,628,733	13.0%	5,379,459	4,640,827	4,727,692	4,201,573	8,823	7,593	769,790	778,741

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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 7.17. Average Cost of Coal Delivered for Electricity Generation by State, 2018 and 2017
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017
New England	4.37	W	W	3.87	4.34	4.64	W
Connecticut	W	--	W	--	--	W	--
Maine	W	W	W	--	--	W	W
Massachusetts	--	W	W	--	--	--	W
New Hampshire	3.87	4.34	-11.0%	3.87	4.34	--	--
Rhode Island	W	--	W	--	--	W	--
Vermont	--	--	--	--	--	--	--
Middle Atlantic	2.15	1.94	11.0%	--	1.66	2.15	1.94
New Jersey	W	W	W	--	--	W	W
New York	W	W	W	--	--	W	W
Pennsylvania	2.09	1.88	11.0%	--	1.66	2.09	1.88
East North Central	1.99	2.02	-1.5%	2.11	2.10	1.82	1.88
Illinois	1.77	W	W	1.88	1.85	1.75	W
Indiana	W	W	W	2.11	2.15	W	W
Michigan	W	W	W	2.12	2.17	W	W
Ohio	W	1.92	W	1.77	1.74	W	1.98
Wisconsin	2.28	2.22	2.7%	2.28	2.22	--	--
West North Central	1.71	1.75	-2.3%	1.71	1.75	--	--
Iowa	1.63	1.66	-1.8%	1.63	1.66	--	--
Kansas	1.71	1.72	-0.6%	1.71	1.72	--	--
Minnesota	2.19	2.09	4.8%	2.19	2.09	--	--
Missouri	1.80	1.87	-3.7%	1.80	1.87	--	--
Nebraska	1.26	1.37	-8.0%	1.26	1.37	--	--
North Dakota	1.55	1.59	-2.5%	1.55	1.59	--	--
South Dakota	1.87	2.19	-15.0%	1.87	2.19	--	--
South Atlantic	2.64	2.69	-1.9%	2.70	2.72	2.30	2.45
Delaware	W	W	W	--	--	W	W
District of Columbia	--	--	--	--	--	--	--
Florida	2.88	W	W	2.88	2.95	--	W
Georgia	2.75	2.77	-0.7%	2.75	2.77	--	--
Maryland	2.53	2.67	-5.2%	--	--	2.53	2.67
North Carolina	3.15	2.97	6.1%	3.15	2.97	3.97	3.75
South Carolina	3.33	3.30	0.9%	3.33	3.30	--	--
Virginia	W	W	W	2.67	2.73	W	W
West Virginia	2.09	2.20	-5.0%	2.14	2.21	1.90	2.14
East South Central	W	W	W	2.08	2.09	W	W
Alabama	2.27	2.16	5.1%	2.27	2.16	--	--
Kentucky	1.96	1.99	-1.5%	1.96	1.99	--	--
Mississippi	W	W	W	2.69	2.66	W	W
Tennessee	2.16	2.28	-5.3%	2.16	2.28	--	--
West South Central	1.88	1.85	1.6%	2.08	2.10	1.66	1.61
Arkansas	W	W	W	1.98	2.03	W	W
Louisiana	W	W	W	3.12	2.95	W	W
Oklahoma	W	W	W	1.77	1.83	W	W
Texas	1.76	1.74	1.1%	2.04	2.08	1.60	1.57
Mountain	W	W	W	2.00	1.90	W	W
Arizona	2.43	2.23	9.0%	2.43	2.23	--	--
Colorado	1.64	1.77	-7.3%	1.64	1.77	--	--
Idaho	--	--	--	--	--	--	--
Montana	W	W	W	2.01	1.76	W	W
Nevada	W	W	W	3.07	3.08	W	W
New Mexico	2.48	1.96	27.0%	2.48	1.96	--	--
Utah	2.02	1.96	3.1%	2.02	1.96	--	--
Wyoming	W	W	W	1.68	1.66	W	W
Pacific Contiguous	W	W	W	2.34	2.32	W	W
California	--	--	--	--	--	--	--
Oregon	2.34	2.32	0.9%	2.34	2.32	--	--
Washington	W	W	W	--	--	W	W
Pacific Noncontiguous	W	W	W	3.28	3.08	W	W
Alaska	3.28	3.08	6.5%	3.28	3.08	--	--
Hawaii	W	W	W	--	--	W	W
U.S. Total	2.05	2.05	0.0%	2.11	2.12	1.89	1.85

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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, 2018 and 2017
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017
New England	13.08	12.25	6.8%	11.89	14.05	13.29	12.16
Connecticut	14.91	14.18	5.1%	--	--	14.91	14.18
Maine	9.78	W	W	--	--	9.78	W
Massachusetts	12.59	W	W	16.01	14.55	12.31	W
New Hampshire	W	W	W	11.29	13.71	W	W
Rhode Island	W	W	W	--	--	W	W
Vermont	--	--	--	--	--	--	--
Middle Atlantic	14.02	14.97	-6.3%	12.12	10.16	14.88	16.19
New Jersey	15.71	W	W	--	--	15.71	W
New York	13.16	15.89	-17.0%	12.12	10.16	14.00	18.38
Pennsylvania	16.08	W	W	--	--	16.08	W
East North Central	W	W	W	16.28	13.21	W	W
Illinois	16.82	14.33	17.0%	16.39	13.39	16.84	14.38
Indiana	W	W	W	16.34	12.98	W	W
Michigan	15.72	13.01	21.0%	15.72	13.01	--	--
Ohio	W	W	W	16.36	14.15	W	W
Wisconsin	17.16	W	W	17.16	12.68	--	W
West North Central	16.23	13.10	24.0%	16.23	13.10	--	--
Iowa	16.27	13.09	24.0%	16.27	13.09	--	--
Kansas	16.50	13.19	25.0%	16.50	13.19	--	--
Minnesota	16.47	13.18	25.0%	16.47	13.18	--	--
Missouri	16.15	13.37	21.0%	16.15	13.37	--	--
Nebraska	17.36	12.94	34.0%	17.36	12.94	--	--
North Dakota	15.56	12.61	23.0%	15.56	12.61	--	--
South Dakota	17.17	11.98	43.0%	17.17	11.98	--	--
South Atlantic	14.88	12.23	22.0%	15.16	12.27	13.95	11.95
Delaware	W	W	W	--	--	W	W
District of Columbia	--	--	--	--	--	--	--
Florida	16.43	12.50	31.0%	16.43	12.50	--	--
Georgia	15.64	12.12	29.0%	15.66	12.36	15.56	9.49
Maryland	14.01	11.67	20.0%	--	--	14.01	11.67
North Carolina	W	W	W	17.12	12.88	W	W
South Carolina	17.22	12.99	33.0%	17.22	12.99	--	--
Virginia	W	W	W	11.71	10.60	W	W
West Virginia	W	13.25	W	16.62	13.25	W	--
East South Central	W	W	W	15.98	12.67	W	W
Alabama	W	W	W	16.26	13.52	W	W
Kentucky	15.67	12.78	23.0%	15.67	12.78	--	--
Mississippi	15.64	12.17	29.0%	15.64	12.17	--	--
Tennessee	16.21	12.28	32.0%	16.21	12.28	--	--
West South Central	W	12.80	W	15.96	12.89	W	12.67
Arkansas	W	W	W	16.48	12.79	W	W
Louisiana	15.18	13.78	10.0%	15.18	13.78	--	--
Oklahoma	16.20	14.71	10.0%	16.20	14.71	--	--
Texas	W	W	W	15.89	12.39	W	W
Mountain	W	14.27	W	18.21	14.32	W	13.81
Arizona	17.24	13.89	24.0%	17.24	13.89	--	--
Colorado	16.41	14.69	12.0%	16.41	14.69	--	--
Idaho	--	--	--	--	--	--	--
Montana	W	W	W	--	--	W	W
Nevada	W	W	W	18.47	12.34	W	W
New Mexico	19.37	14.40	35.0%	19.37	14.40	--	--
Utah	W	W	W	19.21	14.90	W	W
Wyoming	18.53	14.48	28.0%	18.53	14.48	--	--
Pacific Contiguous	W	W	W	17.24	13.87	W	W
California	--	--	--	--	--	--	--
Oregon	--	12.71	--	--	12.71	--	--
Washington	W	W	W	17.24	17.51	W	W
Pacific Noncontiguous	W	W	W	13.91	11.00	W	W
Alaska	17.76	16.06	11.0%	17.76	16.06	--	--
Hawaii	W	W	W	13.90	11.00	W	W
U.S. Total	14.44	11.88	22.0%	14.39	11.60	14.52	12.67

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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, 2018 and 2017
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017
New England	--	--	--	--	--	--	--
Connecticut	--	--	--	--	--	--	--
Maine	--	--	--	--	--	--	--
Massachusetts	--	--	--	--	--	--	--
New Hampshire	--	--	--	--	--	--	--
Rhode Island	--	--	--	--	--	--	--
Vermont	--	--	--	--	--	--	--
Middle Atlantic	--	--	--	--	--	--	--
New Jersey	--	--	--	--	--	--	--
New York	--	--	--	--	--	--	--
Pennsylvania	--	--	--	--	--	--	--
East North Central	1.51	1.48	2.0%	1.51	1.48	--	--
Illinois	--	--	--	--	--	--	--
Indiana	--	--	--	--	--	--	--
Michigan	1.48	1.44	2.8%	1.48	1.44	--	--
Ohio	--	--	--	--	--	--	--
Wisconsin	1.79	1.79	0.0%	1.79	1.79	--	--
West North Central	--	--	--	--	--	--	--
Iowa	--	--	--	--	--	--	--
Kansas	--	--	--	--	--	--	--
Minnesota	--	--	--	--	--	--	--
Missouri	--	--	--	--	--	--	--
Nebraska	--	--	--	--	--	--	--
North Dakota	--	--	--	--	--	--	--
South Dakota	--	--	--	--	--	--	--
South Atlantic	3.14	2.66	18.0%	3.14	2.66	--	--
Delaware	--	--	--	--	--	--	--
District of Columbia	--	--	--	--	--	--	--
Florida	3.14	2.66	18.0%	3.14	2.66	--	--
Georgia	--	--	--	--	--	--	--
Maryland	--	--	--	--	--	--	--
North Carolina	--	--	--	--	--	--	--
South Carolina	--	--	--	--	--	--	--
Virginia	--	--	--	--	--	--	--
West Virginia	--	--	--	--	--	--	--
East South Central	--	1.50	--	--	1.50	--	--
Alabama	--	--	--	--	--	--	--
Kentucky	--	1.50	--	--	1.50	--	--
Mississippi	--	--	--	--	--	--	--
Tennessee	--	--	--	--	--	--	--
West South Central	2.65	2.20	20.0%	2.65	2.20	--	--
Arkansas	--	--	--	--	--	--	--
Louisiana	2.65	2.20	20.0%	2.65	2.20	--	--
Oklahoma	--	--	--	--	--	--	--
Texas	--	--	--	--	--	--	--
Mountain	--	--	--	--	--	--	--
Arizona	--	--	--	--	--	--	--
Colorado	--	--	--	--	--	--	--
Idaho	--	--	--	--	--	--	--
Montana	--	--	--	--	--	--	--
Nevada	--	--	--	--	--	--	--
New Mexico	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--
Wyoming	--	--	--	--	--	--	--
Pacific Contiguous	--	--	--	--	--	--	--
California	--	--	--	--	--	--	--
Oregon	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--
Pacific Noncontiguous	--	--	--	--	--	--	--
Alaska	--	--	--	--	--	--	--
Hawaii	--	--	--	--	--	--	--
U.S. Total	2.56	2.15	19.0%	2.56	2.15	--	--

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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, 2018 and 2017
(Dollars per MMBtu)

Census Division and State	Electric Power Sector			Electric Utilities		Independent Power Producers	
	Year 2018	Year 2017	Percentage Change	Year 2018	Year 2017	Year 2018	Year 2017
New England	4.62	3.85	20.0%	4.76	3.68	4.62	3.85
Connecticut	4.67	4.25	9.9%	--	--	4.67	4.25
Maine	W	W	W	--	--	W	W
Massachusetts	4.75	3.62	31.0%	4.26	3.45	4.76	3.62
New Hampshire	W	W	W	5.95	4.26	W	W
Rhode Island	4.10	3.53	16.0%	--	--	4.10	3.53
Vermont	--	--	--	--	--	--	--
Middle Atlantic	3.29	2.85	15.0%	4.11	3.50	3.20	2.79
New Jersey	3.07	2.75	12.0%	--	--	3.07	2.75
New York	3.76	3.35	12.0%	4.11	3.50	3.62	3.30
Pennsylvania	3.06	2.56	20.0%	--	--	3.06	2.56
East North Central	3.22	3.10	3.9%	3.30	3.19	3.18	3.05
Illinois	3.37	3.26	3.4%	3.61	3.68	3.35	3.22
Indiana	3.27	W	W	3.38	3.22	3.18	W
Michigan	3.25	3.18	2.2%	3.48	3.38	3.15	3.10
Ohio	3.12	2.90	7.6%	3.17	2.87	3.11	2.91
Wisconsin	3.19	W	W	3.19	3.20	--	W
West North Central	W	W	W	3.18	3.43	W	W
Iowa	2.93	3.03	-3.3%	2.93	3.03	--	--
Kansas	3.22	3.73	-14.0%	3.22	3.73	--	--
Minnesota	W	W	W	3.47	3.81	W	W
Missouri	W	W	W	3.30	3.26	W	W
Nebraska	3.54	3.96	-11.0%	3.54	3.96	--	--
North Dakota	2.83	3.83	-26.0%	2.83	3.83	--	--
South Dakota	2.81	3.07	-8.5%	2.81	3.07	--	--
South Atlantic	4.22	3.88	8.8%	4.32	3.98	3.53	3.14
Delaware	--	--	--	--	--	--	--
District of Columbia	--	--	--	--	--	--	--
Florida	W	4.20	W	4.38	4.21	W	3.76
Georgia	3.90	3.47	12.0%	4.00	3.55	3.53	3.18
Maryland	3.86	3.49	11.0%	3.64	--	3.93	3.49
North Carolina	4.31	W	W	4.41	4.03	3.73	W
South Carolina	4.17	W	W	4.17	3.51	--	W
Virginia	4.14	3.32	25.0%	4.52	3.59	3.15	2.51
West Virginia	W	W	W	3.22	3.00	W	W
East South Central	3.31	3.24	2.2%	3.30	3.24	3.34	3.25
Alabama	W	W	W	3.40	3.34	W	W
Kentucky	W	W	W	3.59	3.64	W	W
Mississippi	W	W	W	3.21	3.14	W	W
Tennessee	3.17	3.04	4.3%	3.17	3.04	--	--
West South Central	3.09	3.13	-1.3%	3.07	3.23	3.11	3.04
Arkansas	W	W	W	3.30	3.30	W	W
Louisiana	W	W	W	3.31	3.27	W	W
Oklahoma	W	W	W	2.76	3.18	W	W
Texas	3.09	3.08	0.3%	2.98	3.19	3.13	3.05
Mountain	W	W	W	3.08	3.45	W	W
Arizona	2.96	W	W	2.90	3.61	3.33	W
Colorado	W	W	W	3.62	3.44	W	W
Idaho	3.59	3.33	7.8%	3.59	3.33	--	--
Montana	W	W	W	1.30	1.78	W	W
Nevada	3.16	3.37	-6.2%	3.16	3.37	--	--
New Mexico	2.42	3.41	-29.0%	2.42	3.41	--	--
Utah	3.11	3.32	-6.3%	3.11	3.32	--	--
Wyoming	W	W	W	3.77	3.89	W	W
Pacific Contiguous	3.94	3.44	15.0%	3.69	3.63	4.19	3.24
California	4.50	3.65	23.0%	4.44	4.02	4.55	3.33
Oregon	W	W	W	2.23	2.45	W	W
Washington	W	W	W	2.94	3.37	W	W
Pacific Noncontiguous	6.72	7.05	-4.7%	6.72	7.05	--	--
Alaska	6.72	7.05	-4.7%	6.72	7.05	--	--
Hawaii	--	--	--	--	--	--	--
U.S. Total	3.56	3.39	5.0%	3.68	3.62	3.40	3.08

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.

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, 2018**

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	156	0.65	7.5	120	0.09	2.0	0	--	--
Connecticut	0	--	--	105	0.09	2.0	0	--	--
Maine	62	0.75	7.6	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	94	0.57	7.4	0	--	--	0	--	--
Rhode Island	0	--	--	15	0.09	2.0	0	--	--
Vermont	0	--	--	0	--	--	0	--	--
Middle Atlantic	15,657	2.83	8.8	0	--	--	0	--	--
New Jersey	603	1.64	7.7	0	--	--	0	--	--
New York	356	2.82	8.6	0	--	--	0	--	--
Pennsylvania	14,698	2.88	8.9	0	--	--	0	--	--
East North Central	61,839	3.24	10.3	73,578	0.24	4.7	0	--	--
Illinois	9,881	3.57	19.7	32,324	0.22	4.6	0	--	--
Indiana	27,100	2.89	8.8	2,673	0.22	4.4	0	--	--
Michigan	1,767	2.26	7.5	20,628	0.26	4.6	0	--	--
Ohio	22,575	3.61	9.3	197	0.20	4.5	0	--	--
Wisconsin	516	2.38	8.2	17,756	0.24	4.9	0	--	--
West North Central	1,164	3.03	9.5	90,003	0.27	5.0	24,023	0.75	10.0
Iowa	391	3.07	8.3	14,917	0.25	4.8	0	--	--
Kansas	204	3.39	13.2	12,388	0.31	4.9	0	--	--
Minnesota	0	--	--	12,904	0.34	6.1	0	--	--
Missouri	569	2.88	8.9	34,707	0.23	4.7	0	--	--
Nebraska	0	--	--	13,527	0.30	5.2	0	--	--
North Dakota	0	--	--	0	--	--	24,023	0.75	10.0
South Dakota	0	--	--	1,560	0.35	5.3	0	--	--
South Atlantic	69,218	2.39	10.0	8,927	0.32	4.6	0	--	--
Delaware	35	2.57	7.9	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	11,702	2.55	8.3	0	--	--	0	--	--
Georgia	6,068	2.59	8.3	8,884	0.32	4.6	0	--	--
Maryland	4,595	2.33	9.9	42	0.20	4.7	0	--	--
North Carolina	11,130	1.78	9.5	0	--	--	0	--	--
South Carolina	6,077	1.70	9.3	0	--	--	0	--	--
Virginia	4,705	1.22	17.3	0	--	--	0	--	--
West Virginia	24,904	2.91	10.3	0	--	--	0	--	--
East South Central	35,182	2.70	9.2	18,960	0.28	5.2	2,993	0.50	13.5
Alabama	5,180	1.48	10.8	9,469	0.29	5.3	0	--	--
Kentucky	24,704	3.06	9.1	7,333	0.25	5.0	0	--	--
Mississippi	366	1.47	7.5	1,241	0.29	5.1	2,993	0.50	13.5
Tennessee	4,932	2.17	8.4	917	0.35	5.3	0	--	--
West South Central	940	2.50	15.4	72,747	0.27	5.1	25,026	1.12	16.7
Arkansas	78	0.39	9.6	16,765	0.23	4.9	0	--	--
Louisiana	517	2.98	9.2	5,620	0.29	5.1	1,114	0.57	16.1
Oklahoma	345	2.26	27.8	8,429	0.23	4.7	0	--	--
Texas	0	--	--	41,933	0.29	5.2	23,912	1.14	16.7
Mountain	21,026	0.55	12.6	60,733	0.50	8.6	239	0.61	9.5
Arizona	6,625	0.60	10.2	9,537	0.62	10.3	0	--	--
Colorado	1,177	0.47	11.9	13,327	0.32	5.8	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	7,731	0.69	9.6	239	0.61	9.5
Nevada	109	0.48	10.2	1,059	0.36	6.9	0	--	--
New Mexico	3,029	0.67	21.7	4,490	0.75	20.8	0	--	--
Utah	10,086	0.50	11.8	484	0.88	9.4	0	--	--
Wyoming	0	--	--	24,104	0.45	6.9	0	--	--
Pacific Contiguous	600	0.44	10.2	4,179	0.34	8.5	0	--	--
California	600	0.44	10.2	0	--	--	0	--	--
Oregon	0	--	--	764	0.25	4.9	0	--	--
Washington	0	--	--	3,415	0.36	9.3	0	--	--
Pacific Noncontiguous	0	--	--	727	0.22	4.8	157	0.14	8.4
Alaska	0	--	--	0	--	--	157	0.14	8.4
Hawaii	0	--	--	727	0.22	4.8	0	--	--
U.S. Total	205,783	2.55	10.1	329,974	0.31	5.7	52,438	0.91	13.4

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 7.22. Receipts and Quality of Coal by Rank Delivered for Electricity Generation:
Electric Utilities by State, 2018**

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	94	0.57	7.4	0	--	--	0	--	--
Connecticut	0	--	--	0	--	--	0	--	--
Maine	0	--	--	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	94	0.57	7.4	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	32,742	2.93	8.7	46,786	0.25	4.7	0	--	--
Illinois	2,011	3.12	10.1	5,532	0.22	4.6	0	--	--
Indiana	25,060	2.84	8.7	2,673	0.22	4.4	0	--	--
Michigan	1,518	2.42	7.6	20,628	0.26	4.6	0	--	--
Ohio	3,716	3.68	8.8	197	0.20	4.5	0	--	--
Wisconsin	437	2.67	7.8	17,756	0.24	4.9	0	--	--
West North Central	760	3.01	10.1	87,168	0.27	5.0	24,023	0.75	10.0
Iowa	0	--	--	13,080	0.25	4.8	0	--	--
Kansas	204	3.39	13.2	12,388	0.31	4.9	0	--	--
Minnesota	0	--	--	12,725	0.34	6.1	0	--	--
Missouri	556	2.87	9.0	34,707	0.23	4.7	0	--	--
Nebraska	0	--	--	12,708	0.31	5.2	0	--	--
North Dakota	0	--	--	0	--	--	24,023	0.75	10.0
South Dakota	0	--	--	1,560	0.35	5.3	0	--	--
South Atlantic	58,082	2.37	10.1	8,884	0.32	4.6	0	--	--
Delaware	0	--	--	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	11,625	2.56	8.3	0	--	--	0	--	--
Georgia	5,930	2.63	8.3	8,884	0.32	4.6	0	--	--
Maryland	0	--	--	0	--	--	0	--	--
North Carolina	10,761	1.82	9.6	0	--	--	0	--	--
South Carolina	6,067	1.70	9.3	0	--	--	0	--	--
Virginia	3,760	1.35	20.1	0	--	--	0	--	--
West Virginia	19,939	2.85	10.4	0	--	--	0	--	--
East South Central	34,338	2.74	9.3	18,960	0.28	5.2	0	--	--
Alabama	5,180	1.48	10.8	9,469	0.29	5.3	0	--	--
Kentucky	24,704	3.06	9.1	7,333	0.25	5.0	0	--	--
Mississippi	366	1.47	7.5	1,241	0.29	5.1	0	--	--
Tennessee	4,088	2.45	8.4	917	0.35	5.3	0	--	--
West South Central	517	2.98	9.2	41,464	0.25	4.9	7,911	1.63	19.7
Arkansas	0	--	--	14,003	0.23	4.8	0	--	--
Louisiana	517	2.98	9.2	3,105	0.26	5.1	1,114	0.57	16.1
Oklahoma	0	--	--	7,436	0.23	4.7	0	--	--
Texas	0	--	--	16,920	0.27	5.0	6,797	1.83	20.4
Mountain	21,026	0.55	12.6	51,944	0.48	8.5	239	0.61	9.5
Arizona	6,625	0.60	10.2	9,537	0.62	10.3	0	--	--
Colorado	1,177	0.47	11.9	13,327	0.32	5.8	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	0	--	--	239	0.61	9.5
Nevada	109	0.48	10.2	473	0.44	9.1	0	--	--
New Mexico	3,029	0.67	21.7	4,490	0.75	20.8	0	--	--
Utah	10,086	0.50	11.8	484	0.88	9.4	0	--	--
Wyoming	0	--	--	23,632	0.45	7.0	0	--	--
Pacific Contiguous	0	--	--	764	0.25	4.9	0	--	--
California	0	--	--	0	--	--	0	--	--
Oregon	0	--	--	764	0.25	4.9	0	--	--
Washington	0	--	--	0	--	--	0	--	--
Pacific Noncontiguous	0	--	--	0	--	--	157	0.14	8.4
Alaska	0	--	--	0	--	--	157	0.14	8.4
Hawaii	0	--	--	0	--	--	0	--	--
U.S. Total	147,560	2.35	9.9	255,970	0.31	5.7	32,330	0.95	12.3

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 7.23. Receipts and Quality of Coal by Rank Delivered for Electricity Generation:
Independent Power Producers by State, 2018**

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	62	0.75	7.6	120	0.09	2.0	0	--	--
Connecticut	0	--	--	105	0.09	2.0	0	--	--
Maine	62	0.75	7.6	0	--	--	0	--	--
Massachusetts	0	--	--	0	--	--	0	--	--
New Hampshire	0	--	--	0	--	--	0	--	--
Rhode Island	0	--	--	15	0.09	2.0	0	--	--
Vermont	0	--	--	0	--	--	0	--	--
Middle Atlantic	15,550	2.84	8.8	0	--	--	0	--	--
New Jersey	603	1.64	7.7	0	--	--	0	--	--
New York	347	2.83	8.6	0	--	--	0	--	--
Pennsylvania	14,599	2.89	8.9	0	--	--	0	--	--
East North Central	27,490	3.59	12.4	26,155	0.21	4.5	0	--	--
Illinois	6,351	3.74	26.8	26,155	0.21	4.5	0	--	--
Indiana	2,040	3.43	9.9	0	--	--	0	--	--
Michigan	241	1.10	6.4	0	--	--	0	--	--
Ohio	18,858	3.60	9.4	0	--	--	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	10,237	2.61	9.5	42	0.20	4.7	0	--	--
Delaware	35	2.57	7.9	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	0	--	--	0	--	--	0	--	--
Georgia	0	--	--	0	--	--	0	--	--
Maryland	4,407	2.35	9.5	42	0.20	4.7	0	--	--
North Carolina	119	0.75	7.0	0	--	--	0	--	--
South Carolina	0	--	--	0	--	--	0	--	--
Virginia	710	0.82	8.9	0	--	--	0	--	--
West Virginia	4,965	3.16	9.7	0	--	--	0	--	--
East South Central	0	--	--	0	--	--	2,993	0.50	13.5
Alabama	0	--	--	0	--	--	0	--	--
Kentucky	0	--	--	0	--	--	0	--	--
Mississippi	0	--	--	0	--	--	2,993	0.50	13.5
Tennessee	0	--	--	0	--	--	0	--	--
West South Central	345	2.26	27.8	31,058	0.30	5.3	17,115	0.90	15.5
Arkansas	0	--	--	2,762	0.23	5.4	0	--	--
Louisiana	0	--	--	2,515	0.32	5.1	0	--	--
Oklahoma	345	2.26	27.8	768	0.23	4.8	0	--	--
Texas	0	--	--	25,013	0.31	5.3	17,115	0.90	15.5
Mountain	0	--	--	8,789	0.65	9.1	0	--	--
Arizona	0	--	--	0	--	--	0	--	--
Colorado	0	--	--	0	--	--	0	--	--
Idaho	0	--	--	0	--	--	0	--	--
Montana	0	--	--	7,731	0.69	9.6	0	--	--
Nevada	0	--	--	585	0.29	5.0	0	--	--
New Mexico	0	--	--	0	--	--	0	--	--
Utah	0	--	--	0	--	--	0	--	--
Wyoming	0	--	--	472	0.43	5.9	0	--	--
Pacific Contiguous	0	--	--	3,415	0.36	9.3	0	--	--
California	0	--	--	0	--	--	0	--	--
Oregon	0	--	--	0	--	--	0	--	--
Washington	0	--	--	3,415	0.36	9.3	0	--	--
Pacific Noncontiguous	0	--	--	727	0.22	4.8	0	--	--
Alaska	0	--	--	0	--	--	0	--	--
Hawaii	0	--	--	727	0.22	4.8	0	--	--
U.S. Total	53,683	3.15	10.8	70,306	0.31	5.7	20,108	0.85	15.2

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, 2018

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	13	3.04	8.6	0	--	--	0	--	--
Iowa	0	--	--	0	--	--	0	--	--
Kansas	0	--	--	0	--	--	0	--	--
Minnesota	0	--	--	0	--	--	0	--	--
Missouri	13	3.04	8.6	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	13	3.04	8.6	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, 2018**

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	108	2.47	7.9	0	--	--	0	--	--
New Jersey	0	--	--	0	--	--	0	--	--
New York	9	2.46	8.3	0	--	--	0	--	--
Pennsylvania	99	2.47	7.8	0	--	--	0	--	--
East North Central	1,607	3.43	8.7	637	0.76	6.3	0	--	--
Illinois	1,519	3.60	8.6	637	0.76	6.3	0	--	--
Indiana	0	--	--	0	--	--	0	--	--
Michigan	9	0.84	7.8	0	--	--	0	--	--
Ohio	0	--	--	0	--	--	0	--	--
Wisconsin	80	0.50	10.9	0	--	--	0	--	--
West North Central	391	3.07	8.3	2,834	0.21	4.5	0	--	--
Iowa	391	3.07	8.3	1,837	0.21	4.5	0	--	--
Kansas	0	--	--	0	--	--	0	--	--
Minnesota	0	--	--	178	0.23	5.5	0	--	--
Missouri	0	--	--	0	--	--	0	--	--
Nebraska	0	--	--	819	0.21	4.4	0	--	--
North Dakota	0	--	--	0	--	--	0	--	--
South Dakota	0	--	--	0	--	--	0	--	--
South Atlantic	899	1.00	10.1	0	--	--	0	--	--
Delaware	0	--	--	0	--	--	0	--	--
District of Columbia	0	--	--	0	--	--	0	--	--
Florida	77	0.72	7.4	0	--	--	0	--	--
Georgia	139	1.00	10.1	0	--	--	0	--	--
Maryland	188	1.89	21.2	0	--	--	0	--	--
North Carolina	251	0.81	6.9	0	--	--	0	--	--
South Carolina	11	0.70	8.2	0	--	--	0	--	--
Virginia	235	0.74	7.2	0	--	--	0	--	--
West Virginia	0	--	--	0	--	--	0	--	--
East South Central	843	0.95	8.2	0	--	--	0	--	--
Alabama	0	--	--	0	--	--	0	--	--
Kentucky	0	--	--	0	--	--	0	--	--
Mississippi	0	--	--	0	--	--	0	--	--
Tennessee	843	0.95	8.2	0	--	--	0	--	--
West South Central	78	0.39	9.6	226	0.20	4.5	0	--	--
Arkansas	78	0.39	9.6	0	--	--	0	--	--
Louisiana	0	--	--	0	--	--	0	--	--
Oklahoma	0	--	--	226	0.20	4.5	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	600	0.44	10.2	0	--	--	0	--	--
California	600	0.44	10.2	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	4,527	1.91	9.0	3,697	0.31	4.8	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."

Chapter 8

Electric Power System Characteristics and Performance

**Table 8.1. Average Operating Heat Rate for Selected Energy Sources,
2008 through 2018 (Btu per Kilowatthour)**

Year	Coal	Petroleum	Natural Gas	Nuclear
2008	10,378	11,015	8,305	10,452
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

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, 2008 - 2018
(Btu per Kilowatthour)

Prime Mover	Coal	Petroleum	Natural Gas	Nuclear
2008				
Steam Generator	10,138	10,356	10,377	10,452
Gas Turbine	--	13,311	11,576	--
Internal Combustion	--	10,427	9,975	--
Combined Cycle	W	10,985	7,642	--
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	--

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,
2008 through 2018 (Million Dollars)**

Description	2008	2009	2010	2011	2012	2013
Utility Operating Revenues	298,962	276,124	285,512	280,520	270,912	281,901
.....Electric Utility	266,124	249,303	260,119	255,573	249,166	257,718
.....Other Utility	32,838	26,822	25,393	24,946	21,745	24,183
Utility Operating Expenses	267,263	244,243	253,022	247,118	235,694	244,316
.....Electric Utility	236,572	219,544	234,173	228,873	220,722	227,483
.....Operation	175,887	154,925	166,922	161,460	152,379	156,077
.....Production	140,974	118,816	128,831	122,520	111,714	115,046
.....Cost of Fuel	47,337	40,242	44,138	42,779	38,998	41,127
.....Purchased Power	84,724	67,630	67,284	61,447	54,570	55,529
.....Other	8,937	10,970	17,409	18,294	18,146	18,390
.....Transmission	6,950	6,742	6,948	6,876	7,183	7,881
.....Distribution	3,997	3,947	4,007	4,044	4,181	4,197
.....Customer Accounts	5,286	5,203	5,091	5,180	5,086	5,107
.....Customer Service	3,567	3,857	4,741	5,311	5,640	5,906
.....Sales	225	178	185	185	221	203
.....Administrative and General	14,718	15,991	17,120	17,343	18,353	17,738
.....Maintenance	14,192	14,092	14,957	15,772	15,489	15,505
.....Depreciation	19,049	20,095	20,951	22,555	23,677	24,723
.....Taxes and Other	26,202	29,081	31,343	29,086	29,177	31,179
.....Other Utility	30,692	24,698	18,849	18,245	14,972	16,833
Net Utility Operating Income	31,699	31,881	32,490	33,402	35,218	37,585

Description	2014	2015	2016	2017	2018
Utility Operating Revenues	298,430	282,695	282,499	286,501	293,868
.....Electric Utility	271,832	260,121	261,047	263,265	268,421
.....Other Utility	26,598	22,574	21,451	23,235	25,447
Utility Operating Expenses	258,936	242,728	239,037	240,041	253,944
.....Electric Utility	240,643	228,366	226,457	226,110	238,526
.....Operation	165,989	149,939	145,077	142,000	163,479
.....Production	123,366	107,201	100,852	98,859	104,185
.....Cost of Fuel	42,545	34,711	32,621	32,165	33,592
.....Purchased Power	62,066	52,970	49,962	49,030	53,060
.....Other	18,755	19,521	18,269	17,664	17,533
.....Transmission	8,902	9,624	10,447	10,804	11,387
.....Distribution	4,331	4,406	4,734	4,358	4,806
.....Customer Accounts	5,255	5,184	5,077	4,789	4,969
.....Customer Service	6,396	6,445	6,187	5,961	6,019
.....Sales	208	201	205	213	203
.....Administrative and General	17,532	16,878	17,575	17,016	31,911
.....Maintenance	16,801	16,392	16,982	17,996	17,786
.....Depreciation	25,919	26,847	30,097	30,323	32,125
.....Taxes and Other	31,934	35,188	34,301	35,791	25,136
.....Other Utility	18,293	14,362	12,579	13,931	15,418
Net Utility Operating Income	39,494	39,968	43,462	46,460	39,924

Form for that year.

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, 2008 through 2018 (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
2008	9.89	3.72	5.78	3.77	6.20	3.59	3.89	2.72
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

Year	Fuel				Total			
	Nuclear	Fossil Steam	Hydro-electric	Gas Turbine and Small Scale	Nuclear	Fossil Steam	Hydro-electric	Gas Turbine and Small Scale
2008	5.29	28.43	--	64.23	21.37	35.75	9.67	70.72
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

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 2008 through 2018 (Thousand Metric Tons)

Year	Carbon Dioxide (CO ₂)	Sulfur Dioxide (SO ₂)	Nitrogen Oxides (NO _x)
2008	2,484,012	7,830	3,330
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

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, 2008 - 2018

	Flue Gas Desulfurization Systems		Electrostatic Precipitators		Baghouses		Select Catalytic and Non-Catalytic Reduction Systems		Activated Carbon Injection Systems		Direct Sorbent Injection Systems	
Year	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)
2008	638	151,547	1,471	316,810	576	68,442	1,250	277,576	169	17,391	62	7,701
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	1,457	351,217	260	61,160	97	12,985
2014	702	223,835	1,172	283,940	621	105,990	1,471	358,410	278	69,232	104	16,777
2015	693	224,143	1,037	264,905	623	110,820	1,479	359,869	362	106,395	122	23,307
2016	696	228,504	943	252,904	613	112,581	1,481	361,750	480	153,745	125	26,679
2017	680	222,343	886	244,087	601	109,495	1,485	363,520	475	151,153	126	25,762
2018	661	213,912	840	229,403	582	105,282	1,476	362,343	453	143,416	119	26,261

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, 2008 - 2018

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)
2008												
Coal	453	131,909	362	158,369	100	48,787	--	--	--	--	10	4,366
Natural Gas	197	51,110	426	82,293	59	25,261	42	10,209	2	272	10	2,957
Petroleum	84	22,654	20	6,614	3	4,104	--	--	--	--	2	2,022
Other	16	1,162	25	2,251	--	--	2	100	--	--	4	424
2009												
Coal	445	129,350	370	161,312	100	47,960	1	335	--	--	8	3,036
Natural Gas	192	48,737	430	83,892	57	23,022	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	426	83,080	57	22,746	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	441	87,128	58	21,944	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	447	92,478	54	18,533	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	427	88,667	57	18,843	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	419	84,944	55	20,254	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	436	88,942	58	22,311	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	439	88,469	57	21,930	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	438	91,177	58	21,637	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	444	92,857	58	21,509	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

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 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 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, 2008 - 2018

Year	Average Operation and Maintenance Costs (Dollars per Megawatthour)	Average Installed Capital Costs (Dollars per Kilowatt)
2008	1.44	262.28
2009	1.44	357.79
2010	1.52	358.22
2011	1.79	335.16
2012	1.87	278.58
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	0.48

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 Operation and Maintenance Costs were not collected display a '--' to indicate data was not collected.

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'

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

Table 9.5. Emissions from Energy Consumption at Conventional Power Plants and Combined-Heat-and-Power Plants, by State, 2017 and 2018 (Thousand Metric Tons)

Census Division and State	Carbon Dioxide (CO2)		Sulfur Dioxide (SO2)		Nitrogen Oxides (NOx)	
	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017
New England	27,317	27,328	12	10	25	25
Connecticut	9,591	7,874	1	1	6	6
Maine	2,202	2,098	7	6	6	6
Massachusetts	9,976	12,384	3	3	8	9
New Hampshire	2,191	1,976	1	1	3	2
Rhode Island	3,348	2,981	0	0	2	2
Vermont	10	15	0	0	0	1
Middle Atlantic	123,879	122,971	81	86	86	88
New Jersey	18,912	18,136	3	3	10	10
New York	27,936	25,584	11	15	29	28
Pennsylvania	77,031	79,252	67	68	47	49
East North Central	345,080	333,824	346	346	251	250
Illinois	72,261	70,670	80	78	37	36
Indiana	91,554	81,929	63	59	75	70
Michigan	61,435	58,414	74	76	52	50
Ohio	78,051	79,917	106	109	61	65
Wisconsin	41,779	42,893	23	25	26	28
West North Central	213,156	204,724	249	240	176	168
Iowa	34,253	30,661	34	31	29	27
Kansas	23,748	22,238	5	5	17	16
Minnesota	29,805	28,344	24	22	27	25
Missouri	65,623	68,645	94	98	48	47
Nebraska	25,525	22,290	54	47	22	20
North Dakota	31,282	30,043	37	37	32	32
South Dakota	2,921	2,502	1	1	1	1
South Atlantic	355,895	349,546	235	230	245	253
Delaware	3,193	3,630	1	0	2	2
District of Columbia	43	37	0	0	0	0
Florida	107,792	107,438	53	54	59	70
Georgia	54,803	54,811	48	48	43	42
Maryland	17,839	13,379	18	16	12	11
North Carolina	49,642	48,705	37	39	49	49
South Carolina	28,874	25,362	18	17	15	14
Virginia	33,504	31,195	18	19	28	26
West Virginia	60,203	64,988	42	36	37	40
East South Central	177,867	176,387	129	142	104	106
Alabama	56,140	53,192	37	36	32	29
Kentucky	66,267	63,252	53	55	45	44
Mississippi	26,157	24,151	12	11	15	14
Tennessee	29,303	35,792	27	40	12	18
West South Central	353,672	355,603	401	468	297	291
Arkansas	38,349	33,322	59	56	26	31
Louisiana	50,770	49,961	106	111	76	71
Oklahoma	34,476	32,329	32	40	24	24
Texas	230,076	239,991	203	261	171	166
Mountain	203,854	205,278	83	96	172	193
Arizona	46,757	43,739	15	12	38	35
Colorado	34,713	35,720	11	14	19	25
Idaho	1,766	1,771	4	4	4	5
Montana	15,614	15,911	11	12	16	15
Nevada	14,005	13,167	3	2	10	9
New Mexico	18,442	23,000	3	8	16	35
Utah	28,544	27,698	8	10	31	32
Wyoming	44,014	44,273	28	35	37	37
Pacific Contiguous	63,039	63,432	18	19	93	95
California	43,579	44,433	1	1	67	69
Oregon	8,800	7,991	6	7	12	12
Washington	10,661	11,008	11	11	14	14
Pacific Noncontiguous	10,587	10,656	18	20	35	37
Alaska	3,390	3,532	3	3	19	21
Hawaii	7,197	7,124	15	17	16	16
U.S. Total	1,874,346	1,849,750	1,571	1,657	1,485	1,506

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, 2008 through 2012

	Energy Efficiency		Load Management			Total	
Year	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)
2008	74,871	19,708	1,822	26,318	12,064	76,693	31,772
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, 2008 through 2012 (Table Discontinued)

Year	Residential	Commercial	Industrial	Transportation	Total
Energy Efficiency - Energy Savings (Thousand MWh)					
2008	25,396	34,634	14,766	75	74,871
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)					
2008	8,764	7,838	2,991	114	19,708
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)					
2008	1,151	239	431	--	1,822
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)					
2008	8,097	6,029	12,137	55	26,318
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)					
2008	4,158	3,270	4,625	12	12,064
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, 2008 through 2012 (Table Discontinued)

	Energy Efficiency		Load Management			Total	
Year	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)
2008	10,428	6,327	168	7,253	3,292	10,596	9,619
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, 2008 through 2012 (Table Discontinued)

Year	Residential	Commercial	Industrial	Transportation	Total
Energy Efficiency - Energy Savings (Thousand MWh)					
2008	4,568	4,383	1,477	1	10,428
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)					
2008	4,543	1,168	614	1	6,327
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)					
2008	32	62	74	--	168
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)					
2008	3,013	2,156	2,083	1	7,253
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)					
2008	1,179	1,445	667	1	3,292
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,

2008 through 2012 (Thousand Dollars) (Table Discontinued)

Year	Energy Efficiency	Load Management	Direct Cost	Indirect Cost	Total Cost
2008	2,137,452	836,359	2,973,811	181,843	3,186,742
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 2018**

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
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
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
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

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 2018

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
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
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
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

* = 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 2018**

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
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
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
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

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 2018**

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
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

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

Table 10.10. Advanced Metering Count by Technology Type, 2009 through 2018

Year	Residential	Commercial	Industrial	Transportation	Total
Automated Meter Reading (AMR)					
2009	41,462,111	4,239,531	107,033	11	45,808,686
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
Advanced Metering Infrastructure (AMI)					
2009	8,712,297	876,419	22,675	10	9,611,401
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
Standard (non-AMR/AMI) Meters					
2009	--	--	--	--	--
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
Total Number of Meters					
2009	--	--	--	--	--
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

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, 2008 through 2018**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2008	1,318,498	133,223	1,225	--	1,452,946
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
Year 2016					
January	1,327,936	127,058	640	--	1,455,634
February	1,328,227	127,040	637	--	1,455,904
March	1,329,387	127,155	636	--	1,457,178
April	1,331,140	127,236	635	--	1,459,011
May	1,332,103	127,264	636	--	1,460,003
June	1,332,712	127,158	635	--	1,460,505
July	1,333,672	127,327	633	--	1,461,632
August	1,333,858	127,218	631	--	1,461,707
September	1,331,317	126,967	627	--	1,458,911
October	1,334,555	127,221	626	--	1,462,402
November	1,335,163	127,237	629	--	1,463,029
December	1,335,753	127,265	627	--	1,463,645
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

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, 2008 through 2018 (Megawatthours)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2008	6,473,008	9,022,906	3,543,703	--	19,039,617
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
Year 2016					
January	514,603	647,983	158,461	--	1,321,047
February	446,691	646,627	176,197	--	1,269,516
March	498,818	737,957	207,852	--	1,444,626
April	505,807	664,910	175,755	--	1,346,472
May	555,936	746,192	201,814	--	1,503,941
June	594,352	742,387	200,571	--	1,537,310
July	620,798	773,186	192,844	--	1,586,828
August	603,620	721,615	204,645	--	1,529,880
September	594,027	751,122	187,197	--	1,532,346
October	539,819	704,304	179,924	--	1,424,047
November	541,191	723,348	189,954	--	1,454,494
December	508,643	709,243	175,881	--	1,393,767
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

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, 2008 through 2018 (Thousand Dollars)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2008	1,573,993	2,284,639	734,155	--	4,592,787
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
Year 2016					
January	86,331	120,134	22,802	--	229,267
February	74,756	118,381	25,070	--	218,207
March	79,335	130,653	29,147	--	239,135
April	85,526	123,522	25,520	--	234,567
May	90,773	139,011	29,482	--	259,266
June	102,950	141,139	30,318	--	274,407
July	110,365	149,894	30,362	--	290,621
August	117,700	154,261	35,642	--	307,604
September	110,837	145,869	31,093	--	287,799
October	108,321	155,106	33,013	--	296,440
November	102,173	147,119	32,370	--	281,662
December	100,648	152,119	31,491	--	284,258
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

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, 2008 through 2018 (Cents per Kilowatthour)**

Period	Residential	Commercial	Industrial	Transportation	All Sectors
Annual Totals					
2008	24.32	25.32	20.72	--	24.12
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
Year 2016					
January	16.78	18.54	14.39	--	17.36
February	16.74	18.31	14.23	--	17.19
March	15.90	17.70	14.02	--	16.55
April	16.91	18.58	14.52	--	17.42
May	16.33	18.63	14.61	--	17.24
June	17.32	19.01	15.12	--	17.85
July	17.78	19.39	15.74	--	18.31
August	19.50	21.38	17.42	--	20.11
September	18.66	19.42	16.61	--	18.78
October	20.07	22.02	18.35	--	20.82
November	18.88	20.34	17.04	--	19.37
December	19.79	21.45	17.90	--	20.40
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

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, 2008 through 2018**

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Ultimate Customers					
2008	10,466	1,395	9	--	11,870
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
Sales of Electricity to Ultimate Customers (megawatthours)					
2008	44,865	80,717	40,585	--	166,167
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
Revenue from Sales of Electricity to Ultimate Customers (thousand dollars)					
2008	15,344	30,524	14,024	--	59,892
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
Average Price of Electricity to Ultimate Customers (cents per kilowatthour)					
2008	34.20	37.82	34.55	--	36.04
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

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

Table 11.6. Guam
By Sector, 2008 through 2018

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Ultimate Customers					
2008	39,097	6,567	--	--	45,664
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
Sales of Electricity to Ultimate Customers (megawatthours)					
2008	472,873	1,163,918	--	--	1,636,791
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
Revenue from Sales of Electricity to Ultimate Customers (thousand dollars)					
2008	101,550	267,946	--	--	369,496
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
Average Price of Electricity to Ultimate Customers (cents per kilowatthour)					
2008	21.48	23.02	--	--	22.57
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

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

**Table 11.7. Northern Mariana Islands
By Sector, 2011 through 2018**

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
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
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
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

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

**Table 11.8. Virgin Islands
By Sector, 2008 through 2018**

Year	Residential	Commercial	Industrial	Transportation	Total
Number of Ultimate Customers					
2008	43,972	8,402	1,631	--	54,005
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
Sales of Electricity to Ultimate Customers (megawatthours)					
2008	266,734	124,774	375,250	--	766,758
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
Revenue from Sales of Electricity to Ultimate Customers (thousand dollars)					
2008	83,309	37,311	143,089	--	263,709
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
Average Price of Electricity to Ultimate Customers (cents per kilowatthour)					
2008	31.23	29.90	38.13	--	34.39
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

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								
							Tangential Boiler		All Other Boiler Types			
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	Dry-Bottom Boilers	Wet-Bottom Boilers	Dry-Bottom Boilers	Wet-Bottom Boilers	Combustion Turbine	Internal Combustion Engine
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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

		Reduction Factor							
Nitrogen Oxides Control Technology	EIA Code	Coal	Residual Fuel Oil and Distallate 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%

		Source of Selected Reduction Factor							
Nitrogen Oxides Control Technology	EIA Code	Coal	Residual Fuel Oil and Distallate 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 Reductiona 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 Distallate 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, Mincipal 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
Hydroelectric Pumped Storage	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
Other Renewable Energy Sources	SUN	Solar (including solar thermal)
	WND	Wind
	GEO	Geothermal
Other Energy Sources	PUR	Purchased Steam
	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. The form collects limited data such as total sales, revenues, and customer counts by state.

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, NYSEDA 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, 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 2,350 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 5,790 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:

$$\text{Emissions} = \text{Quantity of Fuel Consumed} \times \text{Emission Factor}$$

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:

$$\text{Emissions} = \text{Quantity of Fuel Consumed} \times \text{Emission Factor} \times \text{Sulfur Content}$$

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
	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing (other than 325211)
3252	
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
92	Public Administration (other than 921, 922, 92214 or 928)
921	Executive, Legislative, and Other General Government Services
922	Justice, Public Order and Safety Activities (other than 92214)
92214	Correctional Facilities

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:

$$y_{i_{2015m}} = \beta_1 x_{i_{2013}} + w_i^{-1/2} e_i, \text{ where}$$

$x_{i_{2013}}$ is the i^{th} utility's 2013 (or the last published year) solar PV capacity

$y_{i_{2015m}}$ 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

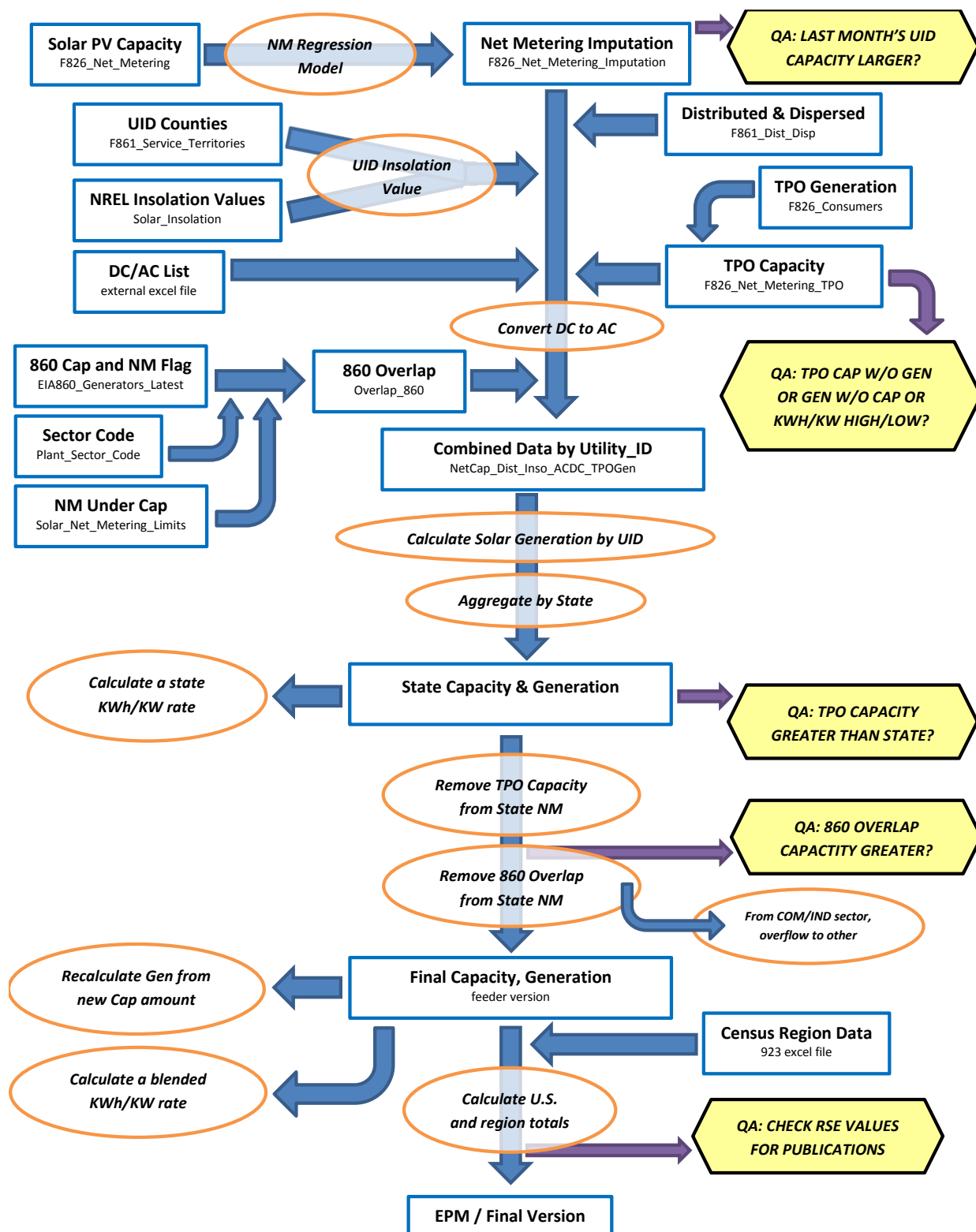
TMY3 (1991-2005) Weather Stations by MSA

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 McAllen 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.