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Preface

The *Annual Coal Report* (ACR) provides information about U.S. coal production, number of mines, productive capacity, recoverable reserves, employment, productivity, consumption, stocks, and prices to a wide audience, including Congress, Federal and State agencies, the coal industry, and the general public. This report is published by EIA to fulfill data collection and dissemination responsibilities as specified in the Federal Energy Administration Act of 1974 (Public Law 93-275), as amended.

This report presents annual data on U.S. coal production, number of mines, productive capacity, recoverable reserves, employment, productivity, consumption, stocks, and prices. Coal production, number of mines, employment, and productivity are based on the U.S. Department of Labor's Mine Safety and Health Administration's survey form 7000-2, "Quarterly Mine

Employment and Coal Production Report." Productive capacity, recoverable reserves, and prices are based on EIA's annual survey form EIA-7A, "Annual Survey of Coal Production and Preparation." Consumption and stocks are based on various other EIA survey forms.

This report is the 41st annual report on the coal industry published by EIA and continues the series formerly included in the *Minerals Yearbook* published by the U.S. Bureau of Mines. All data for 2016 and prior years are final.

The Office of Oil, Gas, and Coal Supply Statistics acknowledges the cooperation of the respondents in supplying the information published in the *Annual Coal Report*, and appreciates the valuable assistance of State coal mining agencies and the U.S. Department of Labor, Mine Safety and Health Administration.

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Executive Summary

Production

In 2016, U.S. coal production dropped 18.8% year-over-year to 728.4 million short tons, the lowest annual production level since 1979. The number of producing mines in the United States continued its declining trend, falling to 710 mines, which is 16.8% fewer mines than in 2015. Production in all three regions – the Western, Interior, and Appalachian – decreased in 2016.

The Appalachian region's coal production in 2016 was 179.6 million short tons, a decline of 18.6% from 2015. The declining trend resulted from historically-low coal productions from West Virginia and Kentucky, which produced 79.8 and 42.9 million short tons, respectively, which represent 16.6% and 30.2% drops from 2015.

Coal production in the Interior region in 2016 was 143.9 million short tons, a decrease of 14.0% from 2015 levels, marking the second decline in production in the past six years. Illinois, the largest coal-producing state in the Interior region, declined by 12.7 million short ton (22.6%) to 43.4 million short tons.

Coal production in the Western region in 2016 decreased by 103.4 million short tons to 404.0 million short tons. Wyoming, the largest coal-producing state in the region, decreased production by 78.6 in 2016 to 297.2 million short tons, while its number of producing mines was unchanged at 16 mines as compared to 2015. Montana's production in 2016 was 32.3 million short tons, 9.5 million short tons lower than in 2015, while the number of mines was also unchanged at 6 mines, as compared to 2015.

Productive Capacity

Productive capacity is the maximum amount of coal that can be produced annually, as reported by mining companies. In 2016, the collective productive capacity of U.S. coal mines decreased for the fifth year in a row, to 1,068.0 million short tons, a decline of 8.3% from the 2015 level. Major producing states that reported the least decline in productive capacity include Montana (unchanged), Wyoming (-2.0%), and West Virginia (-6.1%). Capacity utilization at underground mines and surface mines in 2016 both fell from the 2015 levels. The overall capacity utilization across all mines decreased to 68.0% in 2016 from 76.7% in 2015.

Employment

The total number of employees at U.S. coal mines in 2016 decreased by 21.5% to 51,795 employees. This is the lowest average number of mine employees on record since EIA began collecting data in 1978. The average total number of employees at underground mines and surface mines declined by 25.1% and 16.0%, respectively. West Virginia and Kentucky had the largest declines in the average number of employees in 2016, decreasing by 3,929 (25.4%) and 3,092 employees (31.5%), respectively. While coal mining employment fell in the United States in 2016 as compared to 2015, productivity increased. The average production per employee-hour increased by 5.2% to 6.6 short tons per employee hour in 2016, and after increasing by 5.4% in 2015 from the 2014 level.

Consumption

U.S. coal consumption in 2016 was 731.1 million short tons, a decline of 8.4% from 2015. Coal consumption in the electric power sector decreased by 59.9 million short tons to 678.6 million short tons. Coal consumption in the industrial, coke, and commercial and institutional sectors was 52.5 million short tons in 2016, a 12.0% decrease from the 2015 level.

Stocks

U.S. coal stocks in 2016 ended at 193.5 million short tons, 19.0% lower than at the same time in 2015. Stocks in the electric power sector declined by 33.4 million short tons to 162.5 million short tons at the end of 2016. Coal stocks held by the other industrial, coke, commercial, and institutional sectors were 11.9 million short tons lower at 31.0 million short tons at the end of 2016 than they were at the end of 2015.

Sales Price

The total average sales price of coal from U.S. mines declined by 4.0% from the prior year to \$30.57 per short ton in 2016. The average sales price of coal from surface mines and underground mines declined by 6.1% and 4.7%, respectively, to \$20.47 and \$49.02 per short ton. Average sales price of coal by rank are listed:

- Average sales price of bituminous coal was \$48.40 per short ton in 2016, a 6.1% decrease from the 2015 level.

- Average sales price of subbituminous coal was \$14.83 per short ton in 2016, a 1.4% increase from the 2015 level.
- Average sales price of lignite coal was \$19.99 per short ton in 2016, a 10.6% decline from the 2015 level.
- Average sales price of Anthracite coal was \$97.61 per short ton in 2016, a 0.3% decline from the 2015 level.

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Coal Production

Table 1. Coal Production and Number of Mines by State and Mine Type, 2016 and 2015

(thousand short tons)

Coal-Producing State and Region ¹	2016		2015		Percent Change	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Alabama	30	9,643	37	13,191	-18.9	-26.9
Underground	7	7,434	8	9,897	-12.5	-24.9
Surface	23	2,209	29	3,294	-20.7	-32.9
Alaska	1	932	1	1,177	-	-20.8
Surface	1	932	1	1,177	-	-20.8
Arizona	1	5,423	1	6,805	-	-20.3
Surface	1	5,423	1	6,805	-	-20.3
Arkansas	3	49	2	91	50.0	-46.0
Underground	1	37	1	91	-	-59.7
Surface	2	13	1	-	100.0	NM
Colorado	8	12,634	9	18,879	-11.1	-33.1
Underground	5	8,785	5	13,141	-	-33.2
Surface	3	3,849	4	5,738	-25.0	-32.9
Illinois	21	43,422	23	56,101	-8.7	-22.6
Underground	12	41,257	14	51,973	-14.3	-20.6
Surface	9	2,165	9	4,128	-	-47.6
Indiana	20	28,767	24	34,295	-16.7	-16.1
Underground	8	12,263	9	15,608	-11.1	-21.4
Surface	12	16,503	15	18,688	-20.0	-11.7
Kansas	1	27	1	199	-	-86.6
Surface	1	27	1	199	-	-86.6
Kentucky Total	158	42,868	210	61,425	-24.8	-30.2
Underground	60	32,711	81	43,378	-25.9	-24.6
Surface	98	10,157	129	18,047	-24.0	-43.7
Kentucky (East)	142	16,772	193	28,101	-26.4	-40.3
Underground	51	9,654	70	14,598	-27.1	-33.9
Surface	91	7,118	123	13,503	-26.0	-47.3
Kentucky (West)	16	26,096	17	33,324	-5.9	-21.7
Underground	9	23,057	11	28,780	-18.2	-19.9
Surface	7	3,039	6	4,544	16.7	-33.1
Louisiana	2	2,798	2	3,439	-	-18.6
Surface	2	2,798	2	3,439	-	-18.6
Maryland	17	1,616	18	1,922	-5.6	-15.9
Underground	2	709	2	599	-	18.3
Surface	15	907	16	1,323	-6.3	-31.4
Mississippi	2	2,870	2	3,143	-	-8.7
Surface	2	2,870	2	3,143	-	-8.7
Missouri	1	234	1	138	-	69.2
Surface	1	234	1	138	-	69.2
Montana	6	32,336	6	41,864	-	-22.8
Underground	1	5,609	1	6,420	-	-12.6
Surface	5	26,727	5	35,444	-	-24.6
New Mexico	3	13,341	3	19,679	-	-32.2
Underground	1	4,331	1	6,518	-	-33.6
Surface	2	9,010	2	13,161	-	-31.5
North Dakota	5	28,121	4	28,802	25.0	-2.4
Surface	5	28,121	4	28,802	25.0	-2.4
Ohio	19	12,564	25	17,041	-24.0	-26.3
Underground	9	9,297	11	12,220	-18.2	-23.9
Surface	10	3,267	14	4,821	-28.6	-32.2
Oklahoma	4	654	5	780	-20.0	-16.2
Underground	1	384	1	391	-	-1.8
Surface	3	271	4	389	-25.0	-30.5
Pennsylvania Total	172	45,720	195	50,031	-11.8	-8.6
Underground	41	41,386	45	43,894	-8.9	-5.7
Surface	131	4,334	150	6,137	-12.7	-29.4

Coal-Producing State and Region ¹	2016		2015		Percent Change	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Pennsylvania (Anthracite)	53	1,500	58	1,953	-8.6	-23.2
Underground	10	91	8	86	25.0	5.0
Surface	43	1,409	50	1,867	-14.0	-24.5
Pennsylvania (Bituminous)	119	44,220	137	48,077	-13.1	-8.0
Underground	31	41,295	37	43,807	-16.2	-5.7
Surface	88	2,925	100	4,270	-12.0	-31.5
Tennessee	6	644	10	897	-40.0	-28.3
Underground	4	423	4	531	-	-20.3
Surface	2	221	6	366	-66.7	-39.8
Texas	14	39,001	14	35,918	-	8.6
Surface	14	39,001	14	35,918	-	8.6
Utah	8	13,966	9	14,419	-11.1	-3.1
Underground	7	13,297	8	14,103	-12.5	-5.7
Surface	1	669	1	316	-	111.9
Virginia	54	12,910	65	13,914	-16.9	-7.2
Underground	25	8,971	32	9,677	-21.9	-7.3
Surface	29	3,939	33	4,237	-12.1	-7.0
West Virginia Total	123	79,757	151	95,633	-18.5	-16.6
Underground	68	64,045	81	75,290	-16.1	-14.9
Surface	55	15,713	70	20,343	-21.4	-22.8
West Virginia (Northern)	16	43,524	26	47,785	-38.5	-8.9
Underground	13	43,293	17	46,865	-23.5	-7.6
Surface	3	231	9	920	-66.7	-74.9
West Virginia (Southern)	107	36,233	125	47,848	-14.4	-24.3
Underground	55	20,752	64	28,424	-14.1	-27.0
Surface	52	15,481	61	19,424	-14.8	-20.3
Wyoming	16	297,218	16	375,773	-	-20.9
Underground	1	1,167	1	3,090	-	-62.2
Surface	15	296,051	15	372,682	-	-20.6
Appalachia Total	563	179,626	694	220,730	-18.9	-18.6
Underground	207	141,919	253	166,706	-18.2	-14.9
Surface	356	37,707	441	54,024	-19.3	-30.2
Appalachia Central	309	66,558	393	90,760	-21.4	-26.7
Underground	135	39,800	170	53,230	-20.6	-25.2
Surface	174	26,759	223	37,530	-22.0	-28.7
Appalachia Northern	224	103,424	264	116,779	-15.2	-11.4
Underground	65	94,685	75	103,579	-13.3	-8.6
Surface	159	8,739	189	13,200	-15.9	-33.8
Appalachia Southern	30	9,643	37	13,191	-18.9	-26.9
Underground	7	7,434	8	9,897	-12.5	-24.9
Surface	23	2,209	29	3,294	-20.7	-32.9
Interior Region Total	84	143,917	91	167,430	-7.7	-14.0
Underground	31	76,998	36	96,843	-13.9	-20.5
Surface	53	66,919	55	70,586	-3.6	-5.2
Illinois Basin	57	98,285	64	123,720	-10.9	-20.6
Underground	29	76,578	34	96,361	-14.7	-20.5
Surface	28	21,707	30	27,359	-6.7	-20.7
Other Interior	27	45,632	27	43,709	-	4.4
Underground	2	420	2	482	-	-12.8
Surface	25	45,212	25	43,227	-	4.6
Western Region Total	48	403,971	49	507,397	-2.0	-20.4
Underground	15	33,189	16	43,272	-6.3	-23.3
Surface	33	370,782	33	464,125	-	-20.1
Powder River Basin	16	313,752	16	398,577	-	-21.3
Surface	16	313,752	16	398,577	-	-21.3
Uinta Basin	12	25,077	14	31,919	-14.3	-21.4
Underground	10	21,416	11	26,419	-9.1	-18.9
Surface	2	3,661	3	5,500	-33.3	-33.4
Other Western	20	65,142	19	76,901	5.3	-15.3
Underground	5	11,774	5	16,853	-	-30.1
Surface	15	53,368	14	60,048	7.1	-11.1

Coal-Producing State and Region ¹	2016		2015		Percent Change	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
East of Mississippi River	622	280,780	760	347,594	-18.2	-19.2
West of Mississippi River	73	446,734	74	547,963	-1.4	-18.5
U.S. Subtotal	695	727,514	834	895,557	-16.7	-18.8
Refuse Recovery	15	851	19	1,384	-21.1	-38.5
U.S. Total	710	728,364	853	896,941	-16.8	-18.8

¹ For a definition of coal producing regions, see the Glossary.

-- No data reported.

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

Source: U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 2. Coal Production and Number of Mines by State, County, and Mine Type, 2016

(thousand short tons)

Coal-Producing State and County	Underground		Surface		Total	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Alabama	7	7,434	23	2,209	30	9,643
Bibb	-	-	1	38	1	38
Franklin	-	-	2	65	2	65
Jefferson	3	4,729	6	951	9	5,680
Shelby	1	4	2	119	3	123
Tuscaloosa	1	344	2	106	3	450
Walker	2	2,357	9	887	11	3,244
Winston	-	-	1	43	1	43
Alaska	-	-	1	932	1	932
Denali	-	-	1	932	1	932
Arizona	-	-	1	5,423	1	5,423
Navajo	-	-	1	5,423	1	5,423
Arkansas	1	37	2	13	3	49
Sebastian	1	37	2	13	3	49
Colorado	5	8,785	3	3,849	8	12,634
Delta	1	67	-	-	1	67
Gunnison	1	4,156	-	-	1	4,156
La Plata	1	633	-	-	1	633
Moffat	-	-	2	3,661	2	3,661
Montrose	-	-	1	188	1	188
Rio Blanco	1	1,335	-	-	1	1,335
Routt	1	2,594	-	-	1	2,594
Illinois	12	41,257	9	2,165	21	43,422
Franklin	1	11,444	-	-	1	11,444
Gallatin	-	-	1	235	1	235
Hamilton	1	3,018	-	-	1	3,018
Jackson	-	-	1	3	1	3
Macoupin	1	2,189	-	-	1	2,189
Perry	1	3,277	3	342	4	3,619
Randolph	1	1,811	2	677	3	2,488
Saline	3	4,685	1	633	4	5,318
Sangamon	1	1,663	-	-	1	1,663
Wabash	-	-	1	275	1	275
Washington	1	5,913	-	-	1	5,913
White	1	1,851	-	-	1	1,851
Williamson	1	5,407	-	-	1	5,407
Indiana	8	12,263	12	16,503	20	28,767
Clay	-	-	1	335	1	335
Daviess	-	-	1	1,113	1	1,113
Dubois	-	-	2	1,301	2	1,301
Gibson	2	6,097	1	2,095	3	8,192
Greene	1	15	-	-	1	15
Knox	3	5,898	1	2	4	5,900
Pike	1	250	2	603	3	852
Sullivan	1	4	1	7,283	2	7,287
Warrick	-	-	3	3,771	3	3,771
Kansas	-	-	1	27	1	27
Linn	-	-	1	27	1	27
Kentucky	60	32,711	98	10,157	158	42,868
Bell	4	729	6	434	10	1,163
Breathitt	-	-	2	79	2	79
Daviess	-	-	3	221	3	221
Floyd	5	596	3	308	8	905
Harlan	9	2,317	7	1,043	16	3,360
Hopkins	2	4,268	-	-	2	4,268
Johnson	-	-	9	217	9	217

Coal-Producing State and County	Underground		Surface		Total	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Knott	3	397	2	286	5	683
Knox	2	37	4	239	6	276
Laurel	-	-	1	3	1	3
Lawrence	-	-	2	131	2	131
Leslie	2	572	3	373	5	945
Letcher	-	-	8	61	8	61
Magoffin	-	-	1	344	1	344
Martin	1	595	1	60	2	654
McLean	1	1,275	-	-	1	1,275
Muhlenberg	3	3,026	-	-	3	3,026
Ohio	1	2,137	4	2,818	5	4,955
Perry	5	1,640	10	1,922	15	3,562
Pike	19	2,681	21	1,399	40	4,080
Union	1	8,608	-	-	1	8,608
Webster	1	3,744	-	-	1	3,744
Whitley	1	91	11	217	12	308
Louisiana	-	-	2	2,798	2	2,798
De Soto	-	-	1	2,535	1	2,535
Natchitoches	-	-	1	262	1	262
Maryland	2	709	15	907	17	1,616
Allegany	1	190	9	755	10	945
Garrett	1	519	6	152	7	671
Mississippi	-	-	2	2,870	2	2,870
Choctaw	-	-	1	2,766	1	2,766
Kemper	-	-	1	104	1	104
Missouri	-	-	1	234	1	234
Bates	-	-	1	234	1	234
Montana	1	5,609	5	26,727	6	32,336
Big Horn	-	-	3	17,605	3	17,605
Musselshell	1	5,609	-	-	1	5,609
Richland	-	-	1	309	1	309
Rosebud	-	-	1	8,812	1	8,812
New Mexico	1	4,331	2	9,010	3	13,341
Mckinley	-	-	1	4,903	1	4,903
San Juan	1	4,331	1	4,107	2	8,438
North Dakota	-	-	5	28,121	5	28,121
McLean	-	-	1	7,249	1	7,249
Mercer	-	-	3	16,576	3	16,576
Oliver	-	-	1	4,296	1	4,296
Ohio	9	9,297	10	3,267	19	12,564
Belmont	1	2,816	1	333	2	3,148
Carroll	1	23	-	-	1	23
Harrison	2	616	3	1,449	5	2,065
Jackson	-	-	1	42	1	42
Jefferson	2	112	-	-	2	112
Monroe	1	4,984	-	-	1	4,984
Noble	-	-	1	440	1	440
Perry	1	711	1	390	2	1,101
Tuscarawas	1	37	2	500	3	537
Vinton	-	-	1	112	1	112
Oklahoma	1	384	3	271	4	654
Le Flore	1	384	1	126	2	510
Nowata	-	-	1	143	1	143
Okmulgee	-	-	1	1	1	1
Pennsylvania	41	41,386	131	4,334	172	45,720
Allegheny	-	-	2	8	2	8
Armstrong	6	529	2	23	8	552
Beaver	1	61	-	-	1	61
Bedford	-	-	1	105	1	105
Butler	-	-	2	213	2	213
Cambria	1	173	7	504	8	678

Coal-Producing State and County	Underground		Surface		Total	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Clarion	-	-	2	6	2	6
Clearfield	3	331	25	875	28	1,206
Columbia	-	-	1	77	1	77
Dauphin	1	15	-	-	1	15
Elk	-	-	1	1	1	1
Fayette	-	-	4	6	4	6
Greene	5	27,865	2	115	7	27,979
Indiana	8	1,393	8	86	16	1,479
Jefferson	1	88	5	241	6	329
Luzerne	-	-	9	350	9	350
Lycoming	-	-	1	173	1	173
Mercer	-	-	1	49	1	49
Northumberland	3	14	8	149	11	163
Schuylkill	6	62	25	833	31	894
Somerset	4	1,195	18	332	22	1,527
Washington	1	9,638	3	67	4	9,705
Westmoreland	1	21	4	120	5	141
Tennessee	4	423	2	221	6	644
Claiborne	4	423	2	221	6	644
Texas	-	-	14	39,001	14	39,001
Atascosa	-	-	1	2,777	1	2,777
Freestone	-	-	1	1,342	1	1,342
Harrison	-	-	2	4,400	2	4,400
Hopkins	-	-	1	59	1	59
Lee	-	-	1	6,983	1	6,983
Leon	-	-	1	3,665	1	3,665
Limestone	-	-	1	9,299	1	9,299
Maverick	-	-	1	1,788	1	1,788
Panola	-	-	2	2,871	2	2,871
Robertson	-	-	1	2,123	1	2,123
Rusk	-	-	2	3,693	2	3,693
Utah	7	13,297	1	669	8	13,966
Carbon	3	6,994	-	-	3	6,994
Emery	2	894	-	-	2	894
Kane	1	34	1	669	2	703
Sevier	1	5,375	-	-	1	5,375
Virginia	25	8,971	29	3,939	54	12,910
Buchanan	13	6,179	11	1,250	24	7,430
Dickenson	7	2,173	6	1,328	13	3,501
Lee	-	-	1	112	1	112
Russell	-	-	1	179	1	179
Tazewell	-	-	3	250	3	250
Wise	5	619	7	819	12	1,438
West Virginia	68	64,045	55	15,713	123	79,757
Barbour	1	1,002	-	-	1	1,002
Boone	7	2,585	6	2,426	13	5,011
Fayette	3	898	3	1,455	6	2,353
Greenbrier	2	9	4	408	6	417
Kanawha	5	4,342	5	1,522	10	5,864
Logan	8	3,994	9	3,890	17	7,883
Marion	2	10,958	1	50	3	11,008
Marshall	2	16,790	-	-	2	16,790
Mcdowell	15	1,070	12	1,465	27	2,536
Mercer	-	-	1	111	1	111
Mingo	3	1,229	4	1,789	7	3,018
Monongalia	2	1,830	1	20	3	1,849
Nicholas	1	594	-	-	1	594
Ohio	1	6,593	-	-	1	6,593
Raleigh	6	3,301	5	1,503	11	4,804
Taylor	1	3,574	-	-	1	3,574
Tucker	1	2,014	-	-	1	2,014

Coal-Producing State and County	Underground		Surface		Total	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Upshur	1	400	-	-	1	400
Webster	2	133	1	161	3	294
Wyoming	5	2,728	3	913	8	3,641
Wyoming	1	1,167	15	296,051	16	297,218
Campbell	-	-	11	257,542	11	257,542
Converse	-	-	1	29,793	1	29,793
Lincoln	-	-	1	4,106	1	4,106
Sweetwater	1	1,167	2	4,610	3	5,777
U.S. Subtotal	253	252,106	442	475,407	695	727,514
Refuse Recovery	-	-	-	-	15	851
U.S. Total	253	252,106	442	475,407	710	728,364

- = No data reported.

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

Source: U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 3. Underground Coal Production by State and Mining Method, 2016

(thousand short tons)

Coal-Producing State and Region ¹	Continuous ²	Conventional and Other ³	Longwall ⁴	Total
Alabama	220	4	7,210	7,434
Arkansas	37	-	-	37
Colorado	699	-	8,086	8,785
Illinois	18,248	11,444	11,565	41,257
Indiana	12,259	4	-	12,263
Kentucky Total	32,600	111	-	32,711
Kentucky (East)	9,543	111	-	9,654
Kentucky (West)	23,057	-	-	23,057
Maryland	709	-	-	709
Montana	-	-	5,609	5,609
New Mexico	-	-	4,331	4,331
Ohio	1,456	42	7,800	9,297
Oklahoma	384	-	-	384
Pennsylvania Total	5,774	92	35,521	41,386
Pennsylvania (Anthracite)	45	46	-	91
Pennsylvania (Bituminous)	5,729	46	35,521	41,295
Tennessee	411	13	-	423
Utah	1,578	-	11,719	13,297
Virginia	3,926	99	4,946	8,971
West Virginia Total	18,027	139	45,879	64,045
West Virginia (Northern)	1,857	-	41,436	43,293
West Virginia (Southern)	16,170	139	4,442	20,752
Wyoming	-	-	1,167	1,167
Appalachia Total	40,064	499	101,355	141,919
Appalachia Central	30,049	362	9,389	39,800
Appalachia Northern	9,795	134	84,756	94,685
Appalachia Southern	220	4	7,210	7,434
Interior Region Total	53,985	11,448	11,565	76,998
Illinois Basin	53,565	11,448	11,565	76,578
Other Interior	420	-	-	420
Western Region Total	2,278	-	30,912	33,189
Uinta Basin	1,611	-	19,805	21,416
Other Western	666	-	11,107	11,774
East of Mississippi River	93,629	11,947	112,920	218,496
West of Mississippi River	2,698	-	30,912	33,610
U.S. Total	96,327	11,947	143,832	252,106

1 For a definition of coal producing regions, see the Glossary.

2 Mines that produce greater than 50 percent of their coal by continuous mining methods.

3 Mines that: 1. produce greater than 50 percent of their coal by conventional mining methods, 2. produce coal using shortwall, scoop loading, hand loading, or other methods, 3. have a 50/50 percent continuous/conventional split in mining methods, or 4. produce less than 25,000 short tons, which are not required to provide data.

4 Mines that have any production from the longwall mining method. A typical longwall mining operation uses 80 percent longwall mining and 20 percent continuous mining.

- = No data reported.

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

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 4. Coal Production by Coalbed Thickness and Mine Type, 2016

(thousand short tons)

Coal Thickness (inches)	Underground	Surface	Total
Under 7	-	992	992
7 - Under 13	-	2,263	2,263
13 - Under 19	612	6,441	7,053
19 - Under 25	229	7,961	8,190
25 - Under 31	1,473	7,204	8,677
31 - Under 37	7,698	7,921	15,619
37 - Under 43	9,055	7,784	16,839
43 - Under 49	9,284	11,063	20,347
49 - Under 55	12,071	8,387	20,458
55 - Under 61	30,297	3,916	34,213
61 - Under 67	16,371	10,528	26,899
67 - Under 73	30,668	6,262	36,931
73 - Under 79	41,584	5,539	47,123
79 - Under 85	25,883	1,820	27,703
85 - Under 91	22,444	3,077	25,521
91 - Under 97	15,342	3,806	19,147
97 - Under 103	-	1,437	1,437
103 - Under 109	5,609	5,498	11,107
109 - Under 115	1,587	1,469	3,056
115 - 120	15,739	7,925	23,664
Over 120	5,599	362,581	368,180
Unknown *	563	1,531	2,945
U.S. Total	252,106	475,407	728,364

* Includes mines with production of less than 25,000 short tons, which are not required to provide data, and refuse recovery.

- = No data reported.

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

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 5. Coal Production and Coalbed Thickness by Major Coalbeds and Mine Type, 2016

Coalbed ID Number ¹ Coalbed Name	Production (thousand short tons)			Thickness (inches)			
	Underground	Surface	Total	Average ²	Low	High	
1699	Wyodak	-	265,954	265,954	769	160	900
0212	Pittsburgh	52,166	315	52,480	82	36	108
0484	Herrin (Illinois No. 6)	46,846	2,588	49,434	73	43	86
0489	No. 9	29,025	8,260	37,284	66	24	81
0036	Pittsburgh	27,002	1,140	28,142	73	18	84
1569	Beulah-Zap	-	16,550	16,550	197	114	210
1701	Smith	-	12,568	12,568	807	720	880
1696	Anderson-Dietz 1-Dietz 2	-	12,327	12,327	909	660	960
1808	Rosebud	-	11,349	11,349	256	186	276
1570	Hagel	-	10,943	10,943	125	115	144
1787	Roland	-	8,813	8,813	480	388	495
0344	Pocahontas No. 3	8,709	-	8,709	59	35	71
0280	Blue Creek	6,769	167	6,935	53	16	61
0084	Lower Kittanning	5,407	1,360	6,768	62	10	84
0176	Eagle	5,001	681	5,682	44	22	50
0204	Mammoth	5,609	-	5,609	108	108	108
1847	Upper Hiawatha	5,375	-	5,375	120	120	120
1488	Fruitland No. 8	4,331	452	4,783	161	149	162
1830	Lower O'connor	4,757	-	4,757	120	120	120
0168	Lower Elkhorn	3,838	876	4,714	46	18	65
0111	Coalburg	-	4,706	4,706	78	5	124
1003	Menefee Formation	633	3,824	4,457	79	78	84
0103	Stockton-Lewiston	1,768	2,464	4,232	67	10	125
1756	E	4,156	-	4,156	120	120	120
0071	Upper Freeport	3,554	596	4,150	66	12	91
Major Coalbeds Total	214,945	365,930	580,876	441	5	960	
Other Coalbeds	36,598	107,946	144,544	87	4	540	
Unknown *	563	1,531	2,945	NA	NA	NA	
U.S. Total	252,106	475,407	728,364	369	-	960	

1 The coalbed ID number is a unique code assigned by EIA to each correlated coalbed or to coal-bearing geologic formations, coal groups, or coal zones. See Coalbed name discussion in note below.

2 Average thickness is the bed thickness weighted by bed production.

* Includes mines with production of less than 25,000 short tons, which are not required to provide data, and refuse recovery.

-- No data reported.

NA = Not Available.

Note: This table lists the top 25 producing coalbeds. The category 'Other Coalbeds' includes all coalbeds from which less than 4.0 million short tons were produced during the year. In some regions, coalbeds are characteristically discontinuous or uncorrelatable from one location to another, and production is identified by the geological formations, coal groups, or coal zones of the native rock where the coalbeds occur. These types of coalbeds are found primarily in the Rocky Mountain States and even in the Gulf Coast lignite belt. Coalbeds of these types are also included in 'Other Coalbeds,' even though production may exceed 4.0 million short tons. Totals may not equal sum of components due to independent rounding. The coalbed name given is the name most commonly used in the State having the greatest production from that coalbed. The States having greatest production for each coalbed are Wyoming (coalbed codes 1699, 1701,1787); West Virginia (coalbed codes 212,84,111,168,103,71); Illinois (coalbed code 484); Indiana (coalbed code 489); Pennsylvania (coalbed code 36);North Dakota (coalbed codes 1569,1570);Montana (coalbed codes 1696, 1808,204);Virginia (coalbed code 344);Alabama (coalbed code 280), Utah(coalbed codes 1847,1830); New Mexico (coalbed codes 1488,1003);Colorado (coalbed codes 1756).In some other States where these are major producing beds, the following alternative coalbed names are also used: coalbed code 484 (Kentucky, Kentucky No 11), coalbed code 489 (Indiana, Indiana No 5), coalbed code 36 (Pennsylvania/Ohio, Pittsburgh No. 8), coalbed code 111 (Kentucky, Hazard No 6)

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 6. Coal Production and Number of Mines by State and Coal Rank, 2016

(thousand short tons)

Coal-Producing State and Region ¹	Bituminous		Subbituminous		Lignite		Anthracite		Total	
	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production	Number of Mines	Production
Alabama	30	9,643	-	-	-	-	-	-	30	9,643
Alaska	-	-	1	932	-	-	-	-	1	932
Arizona	1	5,423	-	-	-	-	-	-	1	5,423
Arkansas	3	49	-	-	-	-	-	-	3	49
Colorado	5	8,907	3	3,728	-	-	-	-	8	12,634
Illinois	21	43,422	-	-	-	-	-	-	21	43,422
Indiana	20	28,767	-	-	-	-	-	-	20	28,767
Kansas	1	27	-	-	-	-	-	-	1	27
Kentucky Total	158	42,868	-	-	-	-	-	-	158	42,868
Kentucky (East)	142	16,772	-	-	-	-	-	-	142	16,772
Kentucky (West)	16	26,096	-	-	-	-	-	-	16	26,096
Louisiana	-	-	-	-	2	2,798	-	-	2	2,798
Maryland	17	1,616	-	-	-	-	-	-	17	1,616
Mississippi	-	-	-	-	2	2,870	-	-	2	2,870
Missouri	1	234	-	-	-	-	-	-	1	234
Montana	1	5,609	4	26,417	1	309	-	-	6	32,336
New Mexico	2	9,234	1	4,107	-	-	-	-	3	13,341
North Dakota	-	-	-	-	5	28,121	-	-	5	28,121
Ohio	19	12,564	-	-	-	-	-	-	19	12,564
Oklahoma	4	654	-	-	-	-	-	-	4	654
Pennsylvania Total	119	44,220	-	-	-	-	53	1,500	172	45,720
Pennsylvania (Anthracite)	-	-	-	-	-	-	53	1,500	53	1,500
Pennsylvania (Bituminous)	119	44,220	-	-	-	-	-	-	119	44,220
Tennessee	6	644	-	-	-	-	-	-	6	644
Texas	-	-	-	-	14	39,001	-	-	14	39,001
Utah	8	13,966	-	-	-	-	-	-	8	13,966
Virginia	54	12,910	-	-	-	-	-	-	54	12,910
West Virginia Total	123	79,757	-	-	-	-	-	-	123	79,757
West Virginia (Northern)	16	43,524	-	-	-	-	-	-	16	43,524
West Virginia (Southern)	107	36,233	-	-	-	-	-	-	107	36,233
Wyoming	1	2,160	15	295,058	-	-	-	-	16	297,218
Appalachia Total	510	178,126	-	-	-	-	53	1,500	563	179,626
Appalachia Central	309	66,558	-	-	-	-	-	-	309	66,558
Appalachia Northern	171	101,924	-	-	-	-	53	1,500	224	103,424
Appalachia Southern	30	9,643	-	-	-	-	-	-	30	9,643
Interior Region Total	66	99,249	-	-	18	44,668	-	-	84	143,917
Illinois Basin	57	98,285	-	-	-	-	-	-	57	98,285
Other Interior	9	964	-	-	18	44,668	-	-	27	45,632
Western Region Total	18	45,298	24	330,243	6	28,430	-	-	48	403,971
Powder River Basin	-	-	16	313,752	-	-	-	-	16	313,752
Uinta Basin	9	21,349	3	3,728	-	-	-	-	12	25,077
Other Western	9	23,949	5	12,763	6	28,430	-	-	20	65,142
East of Mississippi River	567	276,411	-	-	2	2,870	53	1,500	622	280,780
West of Mississippi River	27	46,263	24	330,243	22	70,228	-	-	73	446,734
U.S. Subtotal	594	322,673	24	330,243	24	73,098	53	1,500	695	727,514
Refuse Recovery	9	686	-	-	-	-	6	165	15	851
U.S. Total	603	323,359	24	330,243	24	73,098	59	1,665	710	728,364

¹ For a definition of coal producing regions, see Glossary.

- = No data reported.

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

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 7. Coal Production by State, Mine Type, and Union Status, 2016

(thousand short tons)

Coal-Producing State and Region ¹	Union		Nonunion		Total	
	Underground	Surface	Underground	Surface	Underground	Surface
Alabama	7,210	117	220	1,986	7,430	2,103
Alaska	-	932	-	-	-	932
Arizona	-	5,423	-	-	-	5,423
Arkansas	-	-	37	-	37	-
Colorado	1,335	1,997	7,450	1,852	8,785	3,849
Illinois	-	-	41,257	2,162	41,257	2,162
Indiana	-	-	12,244	16,501	12,244	16,501
Kansas	-	-	-	27	-	27
Kentucky Total	-	-	32,600	9,726	32,600	9,726
Kentucky (East)	-	-	9,543	6,703	9,543	6,703
Kentucky (West)	-	-	23,057	3,023	23,057	3,023
Louisiana	-	-	-	2,798	-	2,798
Maryland	-	-	709	873	709	873
Mississippi	-	-	-	2,870	-	2,870
Missouri	-	-	-	234	-	234
Montana	-	16,482	5,609	10,245	5,609	26,727
New Mexico	4,331	4,107	-	4,903	4,331	9,010
North Dakota	-	5,176	-	22,945	-	28,121
Ohio	2,816	-	6,440	3,262	9,255	3,262
Oklahoma	-	-	384	270	384	270
Pennsylvania Total	10,855	409	30,394	3,235	41,249	3,644
Pennsylvania (Anthracite)	-	409	-	778	-	1,187
Pennsylvania (Bituminous)	10,855	-	30,394	2,457	41,249	2,457
Tennessee	-	-	411	221	411	221
Texas	-	24,247	-	14,753	-	39,001
Utah	-	-	13,297	669	13,297	669
Virginia	-	-	8,872	3,848	8,872	3,848
West Virginia Total	31,026	1,119	32,879	14,438	63,905	15,558
West Virginia (Northern)	29,254	-	14,039	212	43,293	212
West Virginia (Southern)	1,772	1,119	18,841	14,227	20,612	15,346
Wyoming	1,167	6,556	-	289,495	1,167	296,051
Appalachia Total	51,907	1,645	89,468	34,565	141,374	36,210
Appalachia Central	1,772	1,119	37,666	24,999	39,438	26,118
Appalachia Northern	42,925	409	51,581	7,581	94,507	7,990
Appalachia Southern	7,210	117	220	1,986	7,430	2,103
Interior Region Total	-	24,247	76,979	42,637	76,979	66,885
Illinois Basin	-	-	76,559	21,686	76,559	21,686
Other Interior	-	24,247	420	20,951	420	45,198
Western Region Total	6,833	40,673	26,356	330,109	33,189	370,782
Powder River Basin	-	16,172	-	297,580	-	313,752
Uinta Basin	1,335	1,809	20,081	1,852	21,416	3,661
Other Western	5,498	22,691	6,276	30,677	11,774	53,368
East of Mississippi River	51,907	1,645	166,026	59,121	217,933	60,767
West of Mississippi River	6,833	64,920	26,777	348,190	33,610	413,110
U.S. Subtotal	58,740	66,565	192,803	407,312	251,543	473,877
Unknown *	-	-	-	-	563	1,531
U.S. Total	58,740	66,565	192,803	407,312	252,106	475,407

¹ For a definition of coal producing regions, see Glossary.

* Includes mines with production of less than 25,000 short tons, which are not required to provide data.

- = No data reported.

Note: Totals may not equal sum of components because of independent rounding. Excludes refuse recovery operations.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 8. Coal Disposition by State, 2016

(thousand short tons)

Coal-Producing State	Open Market Sales ¹	Captive Sales / Transactions ²	Exports ³	Total
Alabama	2,968	113	6,329	9,410
Alaska	897	-	75	972
Arizona	5,756	-	-	5,756
Arkansas	37	-	-	37
Colorado	6,655	6,184	834	13,673
Illinois	35,231	3,729	6,250	45,209
Indiana	16,682	12,593	172	29,447
Kansas	27	-	-	27
Kentucky Total	41,427	894	1,168	43,489
Kentucky (East)	14,908	519	1,092	16,519
Kentucky (West)	26,519	375	75	26,970
Louisiana	240	2,666	-	2,906
Maryland	1,430	-	209	1,638
Mississippi	3,049	294	s	3,343
Missouri	234	-	-	234
Montana	25,899	6,788	-	32,687
New Mexico	9,750	4,920	-	14,670
North Dakota	23,794	3,795	-	27,589
Ohio	7,000	5,440	137	12,577
Oklahoma	668	-	-	668
Pennsylvania Total	36,068	3,331	7,119	46,517
Pennsylvania (Anthracite)	1,343	40	50	1,432
Pennsylvania (Bituminous)	34,725	3,291	7,069	45,085
Tennessee	606	-	-	606
Texas	8,132	29,284	1,780	39,196
Utah	11,927	1,345	1,049	14,321
Virginia	6,313	709	5,004	12,025
West Virginia Total	49,988	10,543	21,276	81,807
West Virginia (Northern)	27,953	9,327	6,889	44,169
West Virginia (Southern)	22,035	1,216	14,387	37,638
Wyoming	180,467	117,531	-	297,999
U.S. Subtotal	475,244	210,159	51,401	736,804
Other Exports *	-	-	8,870	8,870
U.S. Total **	475,244	210,159	60,271	745,674

1 Open market sales include all coal sold on the open market to other coal companies or consumers; excludes exports.

2 Captive sales transactions include all coal used by the producing company or sold to affiliated or parent companies; excludes exports.

3 State level total and U.S. subtotal include the quantity of coal exported by coal mines only.

* Estimated quantity of coal exported by coal brokers, coal traders and coal terminals.

** Excludes mines producing less than 25,000 short tons, which are not required to provide data, and refuse recovery.

- = No data reported.

s = Value is less than 0.5 of the table metric.

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

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation.'

Table 9. Major U.S. Coal Mines, 2016

Rank	Mine Name / Operating Company	Mine Type	State	Production (short tons)
1	North Antelope Rochelle Mine / Peabody Powder River Mining LLC	Surface	Wyoming	92,863,811
2	Black Thunder / Thunder Basin Coal Company LLC	Surface	Wyoming	67,889,779
3	Antelope Coal Mine / Antelope Coal LLC	Surface	Wyoming	29,793,257
4	Eagle Butte Mine / Contura Coal West LLC	Surface	Wyoming	19,003,005
5	Cordero Rojo Mine / Cordero Mining LLC	Surface	Wyoming	18,332,046
6	Belle Ayr Mine / Contura Coal West LLC	Surface	Wyoming	14,883,227
7	Freedom Mine / The Coteau Properties Company	Surface	North Dakota	14,109,960
8	Bailey Mine / Consol Pennsylvania Coal Company	Underground	Pennsylvania	12,056,165
9	Mc#1 Mine / M-Class Mining LLC	Underground	Illinois	11,443,835
10	Caballo Mine / Peabody Caballo Mining, LLC	Surface	Wyoming	11,221,557
11	Marshall County Mine / The Marshall County Coal Company	Underground	West Virginia	10,523,671
12	Spring Creek Coal Company / Spring Creek Coal LLC	Surface	Montana	10,245,081
13	Enlow Fork Mine / Consol Pennsylvania Coal Company	Underground	Pennsylvania	9,638,245
14	Kosse Strip / Luminant Mining Company LLC	Surface	Texas	9,299,300
15	Rosebud Mine&crusher/Conveyor / Western Energy Company	Surface	Montana	8,812,478
16	River View Mine / River View Coal LLC	Underground	Kentucky	8,607,528
17	Coal Creek Mine / Thunder Basin Coal Company LLC	Surface	Wyoming	8,179,632
18	Rawhide Mine / Peabody Caballo Mining, LLC	Surface	Wyoming	8,079,139
19	Bear Run Mine / Peabody Bear Run Mining LLC	Surface	Indiana	7,283,179
20	Falkirk Mine / Falkirk Mining Company	Surface	North Dakota	7,248,542
21	Buckskin Mine / Buckskin Mining Company	Surface	Wyoming	7,130,578
22	Three Oaks / Luminant Mining Company LLC	Surface	Texas	6,983,347
23	Cumberland Mine / Cumberland Contura, LLC	Underground	Pennsylvania	6,959,706
24	Tunnel Ridge Mine / Tunnel Ridge, LLC	Underground	West Virginia	6,593,227
25	Harrison County Mine / The Harrison County Coal Company	Underground	West Virginia	6,586,715
26	Ohio County Mine / The Ohio County Coal Company	Underground	West Virginia	6,265,878
27	Dry Fork Mine / Western Fuels-Wyoming Inc	Surface	Wyoming	6,141,433
28	Lively Grove Mine / Prairie State Generating Company	Underground	Illinois	5,913,129
29	Bull Mountains Mine No 1 / Signal Peak Energy LLC	Underground	Montana	5,609,042
30	Kayenta Mine / Peabody Western Coal Company	Surface	Arizona	5,422,850
31	Mach #1 Mine / Mach Mining LLC	Underground	Illinois	5,406,820
32	Sufco / Canyon Fuel Company LLC	Underground	Utah	5,375,171
33	Century Mine / American Energy Corporation	Underground	Ohio	4,983,672
34	Buchanan Mine #1 / Buchanan Minerals, LLC	Underground	Virginia	4,946,468
35	El Segundo / El Segundo Coal Company, LLC	Surface	New Mexico	4,902,936
36	Skyline Mine #3 / Canyon Fuel Company LLC	Underground	Utah	4,756,924
37	Marion County Mine / The Marion County Coal Company	Underground	West Virginia	4,370,847
38	San Juan Mine 1 / San Juan Coal Company	Underground	New Mexico	4,330,717
39	Center Mine / Bni Coal, Ltd	Surface	North Dakota	4,296,307
40	South Hallsville No 1 Mine / The Sabine Mining Company	Surface	Texas	4,186,658
41	Absaloka Mine / Westmoreland Resources Inc.	Surface	Montana	4,157,548
42	West Elk Mine / Mountain Coal Company, L.L.C.	Underground	Colorado	4,156,405
43	Navajo Mine / Bisti Fuels Company LLC	Surface	New Mexico	4,107,436
44	Kemmerer Mine / Westmoreland Kemmerer, LLC	Surface	Wyoming	4,105,900
Subtotal				507,203,151
All Other Mines				221,161,347
U.S. Total				728,364,498

Note: Major mines are mines that produced more than 4 million short tons in 2016. Company listed indicates the firm operating the mine.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 10. Major U.S. Coal Producers, 2016

Rank	Controlling Company Name	Production (thousand short tons)	Percent of Total Production
1	Peabody Energy Corp	143,024	19.6
2	Arch Coal Inc	96,483	13.2
3	Cloud Peak Energy	58,370	8.0
4	Murray Energy Corp	46,033	6.3
5	Contura Energy Inc	44,231	6.1
6	NACCO Industries Inc	36,373	5.0
7	Alliance Resource Partners LP	35,243	4.8
8	Westmoreland Coal Company	29,594	4.1
9	CONSOL Energy Inc	24,666	3.4
10	Vistra Energy	24,247	3.3
11	Foresight Energy Labor LLC	19,040	2.6
12	Alpha Natural Resources	12,396	1.7
13	Kiewit Peter Sons' Inc	12,031	1.7
14	Blackhawk Mining LLC	11,842	1.6
15	Bowie Resources Partners LLC	10,853	1.5
16	Coronado Coal LLC	7,175	1.0
17	Western Fuels Assoc Inc	6,141	0.8
18	Sunrise Coal LLC	6,113	0.8
19	Prairie State Energy Campus	5,913	0.8
20	Armstrong Energy Inc	5,889	0.8
21	Global Mining Group LLC	5,609	0.8
	Subtotal	641,265	88.0
	All Other Coal Producers	87,099	12.0
	U.S. Total	728,364	100.0

Note: The listed companies each produced more than 5 million short tons of coal in 2016. A controlling company of a mine is defined as the company 'controlling the coal, particularly the sale of the coal.' Most often, but not always, this is the owner of the mine.

Source: U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Productive Capacity

Table 11. Productive Capacity of Coal Mines by State, 2016 and 2015

(thousand short tons)

Coal-Producing State	2016			2015			Percent Change		
	Underground	Surface	Total	Underground	Surface	Total	Underground	Surface	Total
Alabama	10,079	2,933	13,012	10,955	4,664	15,620	-8.0	-37.1	-16.7
Alaska	-	3,000	3,000	-	3,000	3,000	-	-	-
Arizona	-	8,500	8,500	-	8,500	8,500	-	-	-
Arkansas	275	-	275	275	-	275	-	-	-
Colorado	12,913	5,160	18,073	20,622	6,218	26,841	-37.4	-17.0	-32.7
Illinois	56,871	6,820	63,691	69,975	7,390	77,365	-18.7	-7.7	-17.7
Indiana	15,173	21,210	36,383	21,404	24,128	45,531	-29.1	-12.1	-20.1
Kansas	-	27	27	-	209	209	-	-87.1	-87.1
Kentucky Total	43,950	15,620	59,570	53,236	25,282	78,518	-17.4	-38.2	-24.1
Kentucky (East)	14,111	11,785	25,896	19,080	19,098	38,178	-26.0	-38.3	-32.2
Kentucky (West)	29,839	3,836	33,675	34,156	6,184	40,340	-12.6	-38.0	-16.5
Louisiana	-	4,285	4,285	-	4,153	4,153	-	3.2	3.2
Maryland	1,000	1,629	2,629	993	1,864	2,857	0.7	-12.6	-8.0
Mississippi	-	8,700	8,700	-	8,700	8,700	-	-	-
Missouri	-	248	248	-	138	138	-	79.7	79.7
Montana	10,000	41,900	51,900	10,000	41,900	51,900	-	-	-
New Mexico	9,000	18,900	27,900	9,000	18,400	27,400	-	2.7	1.8
North Dakota	-	34,500	34,500	-	32,500	32,500	-	6.2	6.2
Ohio	11,231	9,916	21,147	18,412	24,127	42,538	-39.0	-58.9	-50.3
Oklahoma	500	493	993	500	431	931	-	14.4	6.7
Pennsylvania Total	49,563	7,255	56,818	51,967	9,882	61,849	-4.6	-26.6	-8.1
Pennsylvania (Anthracite)	89	3,839	3,929	129	4,812	4,940	-31.0	-20.2	-20.5
Pennsylvania (Bituminous)	49,474	3,416	52,890	51,838	5,070	56,909	-4.6	-32.6	-7.1
Tennessee	594	315	909	685	541	1,226	-13.3	-41.8	-25.9
Texas	-	40,478	40,478	-	41,227	41,227	-	-1.8	-1.8
Utah	17,594	2,000	19,594	17,847	2,000	19,847	-1.4	-	-1.3
Virginia	10,664	5,397	16,061	11,831	5,595	17,426	-9.9	-3.5	-7.8
West Virginia Total	87,753	27,042	114,795	91,153	31,145	122,298	-3.7	-13.2	-6.1
West Virginia (Northern)	57,919	1,230	59,149	53,331	1,330	54,661	8.6	-7.5	8.2
West Virginia (Southern)	29,834	25,812	55,646	37,822	29,816	67,638	-21.1	-13.4	-17.7
Wyoming	2,200	462,317	464,517	4,700	469,340	474,040	-53.2	-1.5	-2.0
U.S. Total	339,361	728,645	1,068,006	393,555	771,337	1,164,892	-13.8	-5.5	-8.3

- = No data reported.

Note: Productive capacity is the maximum amount of coal that can be produced annually as reported by mining companies on Form EIA-7A, 'Annual Survey of Coal Production and Preparation.' Excluding refuse recovery and mines producing less than 25,000 short tons, which are not required to provide data. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation.'

Table 12. Capacity Utilization of Coal Mines by State, 2016 and 2015

(percent)

Coal-Producing State	2016			2015		
	Underground	Surface	Total	Underground	Surface	Total
Alabama	73.72	71.69	73.26	90.34	69.67	84.17
Alaska	-	31.07	31.07	-	39.25	39.25
Arizona	-	63.80	63.80	-	80.05	80.05
Arkansas	13.37	-	13.37	33.19	-	33.19
Colorado	68.03	74.59	69.91	63.72	92.27	70.34
Illinois	72.54	31.70	68.17	74.27	55.83	72.51
Indiana	80.79	77.80	79.05	72.83	77.45	75.28
Kansas	-	99.21	99.21	-	95.31	95.31
Kentucky Total	74.18	62.26	71.05	81.28	69.45	77.47
Kentucky (East)	67.63	56.88	62.74	75.94	68.25	72.09
Kentucky (West)	77.27	78.80	77.45	84.26	73.14	82.56
Louisiana	-	65.29	65.29	-	82.80	82.80
Maryland	70.88	53.59	60.17	60.32	68.81	65.86
Mississippi	-	32.99	32.99	-	36.13	36.13
Missouri	-	94.31	94.31	-	100.00	100.00
Montana	56.09	63.79	62.30	64.20	84.59	80.66
New Mexico	48.12	47.67	47.82	72.42	71.53	71.82
North Dakota	-	81.51	81.51	-	88.62	88.62
Ohio	82.41	32.89	59.19	66.33	19.84	39.96
Oklahoma	76.73	54.66	65.77	78.14	84.68	81.17
Pennsylvania Total	83.32	52.53	79.39	84.40	57.33	80.08
Pennsylvania (Anthracite)	50.51	34.95	35.30	42.71	37.45	37.59
Pennsylvania (Bituminous)	83.38	72.29	82.66	84.51	76.19	83.77
Tennessee	69.15	70.06	69.47	75.65	62.48	69.84
Texas	-	96.35	96.35	-	87.12	87.12
Utah	75.58	33.45	71.28	78.96	15.78	72.60
Virginia	83.20	71.30	79.20	81.35	75.14	79.36
West Virginia Total	72.82	57.53	69.22	82.53	64.91	78.04
West Virginia (Northern)	74.75	17.20	73.55	87.88	66.35	87.35
West Virginia (Southern)	69.09	59.45	64.62	74.98	64.85	70.51
Wyoming	53.06	64.04	63.98	65.75	79.41	79.27
U.S. Total	74.14	65.06	67.94	77.88	76.16	76.74

- = No data reported.

Note: Capacity utilization is the ratio of annual production to annual productive capacity. Excludes refuse recovery and mines producing less than 25,000 short tons, which are not required to provide data. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' for productive capacity, and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report,' for annual production.

Table 13. Productive Capacity and Capacity Utilization of Underground Coal Mines by State and Mining Method, 2016

(thousand short tons)

Coal-Producing State	Continuous ¹		Conventional and Other ²		Longwall ³		Total	
	Productive Capacity	Capacity Utilization Percent	Productive Capacity	Capacity Utilization Percent	Productive Capacity	Capacity Utilization Percent	Productive Capacity	Capacity Utilization Percent
Alabama	350	62.82	-	-	9,729	74.11	10,079	73.72
Arkansas	275	13.37	-	-	-	-	275	13.37
Colorado	1,276	54.80	-	-	11,637	69.48	12,913	68.03
Illinois	21,103	86.47	13,087	87.45	22,682	50.99	56,871	72.54
Indiana	15,173	80.79	-	-	-	-	15,173	80.79
Kentucky Total	43,950	74.18	-	-	-	-	43,950	74.18
Kentucky (East)	14,111	67.63	-	-	-	-	14,111	67.63
Kentucky (West)	29,839	77.27	-	-	-	-	29,839	77.27
Maryland	1,000	70.88	-	-	-	-	1,000	70.88
Montana	-	-	-	-	10,000	56.09	10,000	56.09
New Mexico	-	-	-	-	9,000	48.12	9,000	48.12
Ohio	1,915	76.02	-	-	9,316	83.72	11,231	82.41
Oklahoma	500	76.73	-	-	-	-	500	76.73
Pennsylvania Total	8,007	72.11	-	-	41,556	85.48	49,563	83.32
Pennsylvania (Anthracite)	89	50.51	-	-	-	-	89	50.51
Pennsylvania (Bituminous)	7,917	72.36	-	-	41,556	85.48	49,474	83.38
Tennessee	594	69.15	-	-	-	-	594	69.15
Utah	2,694	58.58	-	-	14,900	78.65	17,594	75.58
Virginia	5,564	70.55	-	-	5,100	96.99	10,664	83.20
West Virginia Total	25,376	71.04	-	-	62,378	73.55	87,753	72.82
West Virginia (Northern)	2,519	73.71	-	-	55,400	74.79	57,919	74.75
West Virginia (Southern)	22,857	70.75	-	-	6,978	63.66	29,834	69.09
Wyoming	-	-	-	-	2,200	53.06	2,200	53.06
U.S. Total	127,776	75.39	13,087	87.45	198,498	72.46	339,361	74.14

1 Mines that produce greater than 50 percent of their coal by continuous mining methods.

2 Mines that produce greater than 50 percent of their coal by conventional methods or mines that produce coal using shortwall, scoop loading, hand loading, or other methods or a 50/50 percent continuous/conventional split in mining method.

3 Mines that have any production from the longwall mining method. A typical longwall mining operation uses 80 percent longwall mining and 20 percent continuous mining.

- = No data reported.

Note: Productive capacity is the maximum amount of coal that can be produced annually. Capacity utilization is the ratio of total production to annual productive capacity. Excludes refuse recovery and mines producing less than 25,000 short tons, which are not required to provide data. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' for productive capacity, and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mines Employment and Coal Production Report,' for annual production.

Recoverable Reserves

Table 14. Recoverable Coal Reserves and Average Recovery Percentage at Producing Mines by State, 2016 and 2015

(million short tons)

Coal-Producing State	2016		2015		Percent Change Recoverable Coal Reserves
	Recoverable Coal Reserves	Average Recovery Percentage	Recoverable Coal Reserves	Average Recovery Percentage	
Alabama	213	43.26	228	49.57	-6.7
Alaska	51	85.00	51	85.00	-1.8
Arizona	203	88.00	209	90.00	-2.9
Arkansas	25	60.00	25	60.00	-0.1
Colorado	291	75.43	298	77.52	-2.2
Illinois	1,529	58.27	2,435	54.85	-37.2
Indiana	564	71.78	627	68.63	-10.0
Kansas	s	-	s	90.00	-100.0
Kentucky Total	1,077	60.88	837	55.41	28.8
Kentucky (East)	666	63.44	357	46.46	86.4
Kentucky (West)	411	56.73	479	62.08	-14.2
Louisiana	88	92.16	89	88.80	-1.4
Maryland	13	70.40	18	79.06	-29.6
Mississippi	691	90.34	694	90.34	-0.4
Missouri	s	100.00	s	100.00	-6.5
Montana	823	90.06	817	90.75	0.8
New Mexico	211	88.07	167	87.89	26.5
North Dakota	1,024	90.59	974	90.15	5.1
Ohio	231	58.53	245	56.43	-5.8
Oklahoma	7	60.81	8	61.37	-7.5
Pennsylvania Total	1,225	58.75	1,296	72.37	-5.5
Pennsylvania (Anthracite)	140	40.55	149	40.10	-5.6
Pennsylvania (Bituminous)	1,084	61.11	1,148	76.56	-5.5
Tennessee	1	44.00	2	66.74	-74.9
Texas	582	93.35	633	93.08	-8.1
Utah	112	67.79	128	69.39	-12.1
Virginia	215	57.82	195	59.13	10.0
West Virginia Total	1,561	66.81	1,667	65.80	-6.4
West Virginia (Northern)	881	71.65	921	70.11	-4.3
West Virginia (Southern)	680	60.54	746	60.48	-8.9
Wyoming	6,220	92.02	6,681	91.70	-6.9
U.S. Total	16,956	79.26	18,327	78.62	-7.5

- = No data reported.

s = Absolute percentage less than 0.05 or value is less than 0.5 of the table metric.

Note: Recoverable reserves represent the quantity of coal that can be recovered (i.e. mined) from existing coal reserves at reporting mines. Average recovery percentage represents the percentage of coal that can be recovered from coal reserves at reporting mines, weighted for all mines in the reported geographic area. Excludes refuse recovery and mines producing less than 25,000 short tons, which are not required to provide data. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 15. Recoverable Coal Reserves at Producing Mines, Estimated Recoverable Reserves, and Demonstrated Reserve Base by Mining Method, 2016

(million short tons)

Coal-Resource State	Underground - Minable Coal			Surface - Minable Coal			Total		
	Recoverable Reserves at Producing Mines	Estimated Recoverable Reserves	Demonstrated Reserve Base	Recoverable Reserves at Producing Mines	Estimated Recoverable Reserves	Demonstrated Reserve Base	Recoverable Reserves at Producing Mines	Estimated Recoverable Reserves	Demonstrated Reserve Base
Alabama	201	381	757	11	2,217	3,112	213	2,598	3,869
Alaska	-	2,335	5,423	51	481	665	51	2,816	6,088
Arizona	-	-	-	203	-	-	203	-	-
Arkansas	25	126	271	-	101	144	25	227	415
Colorado	179	5,738	10,933	112	3,740	4,754	291	9,478	15,687
Georgia	-	1	2	-	1	2	-	2	4
Idaho	-	2	4	-	-	-	-	2	4
Illinois	1,499	27,670	87,108	30	10,030	16,481	1,529	37,700	103,589
Indiana	218	3,492	8,430	346	261	446	564	3,752	8,876
Iowa	-	807	1,732	-	320	457	-	1,127	2,189
Kansas	-	-	-	-	679	970	-	679	970
Kentucky Total	621	6,774	15,763	456	7,210	12,485	1,077	13,984	28,248
Kentucky (East)	244	290	519	422	4,989	8,934	666	5,279	9,453
Kentucky (West)	377	6,484	15,243	34	2,221	3,551	411	8,705	18,794
Louisiana	-	-	-	88	277	374	88	277	374
Maryland	8	306	558	5	29	42	13	335	601
Michigan	-	55	123	-	3	5	-	58	128
Mississippi	-	-	-	691	-	-	691	-	-
Missouri	-	689	1,479	s	3,154	4,505	-	3,843	5,984
Montana	228	35,877	70,867	595	38,602	47,761	823	74,479	118,629
New Mexico	17	2,739	6,022	194	4,027	5,754	211	6,766	11,776
North Carolina	-	5	11	-	-	-	-	5	11
North Dakota	-	-	-	1,024	6,603	8,655	1,024	6,603	8,655
Ohio	217	7,566	17,197	14	3,699	5,651	231	11,265	22,847
Oklahoma	7	569	1,222	s	219	313	7	788	1,535
Oregon	-	6	15	-	2	3	-	9	17
Pennsylvania Total	1,047	10,141	22,156	178	966	4,121	1,225	11,107	26,277
Pennsylvania (Anthracite)	1	340	3,840	140	417	3,333	140	757	7,173
Pennsylvania (Bituminous)	1,046	9,801	18,315	38	549	788	1,084	10,350	19,103
South Dakota	-	-	-	-	277	366	-	277	366
Tennessee	s	271	495	s	170	251	1	442	747
Texas	-	-	-	582	9,097	11,817	582	9,097	11,817
Utah	112	2,305	4,703	1	209	264	112	2,514	4,967
Virginia	165	470	836	50	299	467	215	769	1,303
Washington	-	674	1,332	-	6	8	-	681	1,340
West Virginia Total	1,276	14,629	27,410	285	1,984	3,145	1,561	16,613	30,555
West Virginia (Northern)	876	NA	NA	5	NA	NA	881	NA	NA
West Virginia (Southern)	400	NA	NA	280	NA	NA	680	NA	NA
Wyoming	8	22,913	42,432	6,212	12,990	15,689	6,220	35,904	58,121
U.S. Total	5,828	146,543	327,282	11,128	107,654	148,707	16,956	254,197	475,990

-- No data reported.

NA = Not Available.

s = Value is less than 0.5 of the table metric.

Notes: Recoverable coal reserves at producing mines represent the quantity of coal that can be recovered (i.e. mined) from existing coal reserves at reporting mines. EIA's estimated recoverable reserves include the coal in the demonstrated reserve base considered recoverable after excluding coal estimated to be unavailable due to land use restrictions, and after applying assumed mining recovery rates. This estimate does not include any specific economic feasibility criteria. The effective date for the demonstrated reserve base, as customarily worded, is 'Remaining as of January 1, 2017.' These data are contemporaneous with the Recoverable Reserves at Producing Mines, customarily presented as of the end of the reporting year's mining, that is in this case, December 31, 2016. The demonstrated reserve base includes publicly available data on coal mapped to measured and indicated degrees of accuracy and found at depths and in coalbed thicknesses considered technologically minable at the time of determinations; see Glossary for criteria. All reserve expressions exclude silt, culm, refuse bank, slurry dam, and dredge operations. Reserves at Producing Mines exclude mines producing less than 25,000 short tons, which are not required to provide reserves data.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 16. Recoverable Coal Reserves and Average Recovery Percentage at Producing Underground Coal Mines by State and Mining Method, 2016

(million short tons)

Coal-Producing State	Continuous ¹		Conventional and Other ²		Longwall ³		Total	
	Recoverable Coal Reserves at Producing Mines	Average Recovery Percentage	Recoverable Coal Reserves at Producing Mines	Average Recovery Percentage	Recoverable Coal Reserves at Producing Mines	Average Recovery Percentage	Recoverable Coal Reserves at Producing Mines	Average Recovery Percentage
Alabama	31	50.00	-	-	170	39.66	201	41.25
Arkansas	25	60.00	-	-	-	-	25	60.00
Colorado	19	42.26	-	-	160	75.29	179	71.81
Illinois	494	54.31	553	56.00	452	63.81	1,499	57.80
Indiana	218	65.48	-	-	-	-	218	65.48
Kentucky Total	621	49.41	-	-	-	-	621	49.41
Kentucky (East)	244	41.82	-	-	-	-	244	41.82
Kentucky (West)	377	54.32	-	-	-	-	377	54.32
Maryland	8	58.92	-	-	-	-	8	58.92
Montana	-	-	-	-	228	80.00	228	80.00
New Mexico	-	-	-	-	17	48.00	17	48.00
Ohio	49	56.23	-	-	168	57.11	217	56.91
Oklahoma	7	60.00	-	-	-	-	7	60.00
Pennsylvania Total	161	57.90	-	-	886	60.42	1,047	60.03
Pennsylvania (Anthracite)	1	60.11	-	-	-	-	1	60.11
Pennsylvania (Bituminous)	161	57.89	-	-	886	60.42	1,046	60.03
Tennessee	s	36.55	-	-	-	-	s	36.55
Utah	18	83.24	-	-	94	64.71	112	67.62
Virginia	82	50.11	-	-	83	60.00	165	55.08
West Virginia Total	355	48.20	-	-	921	70.99	1,276	64.65
West Virginia (Northern)	20	51.02	-	-	856	72.08	876	71.59
West Virginia (Southern)	335	48.03	-	-	65	56.62	400	49.43
Wyoming	-	-	-	-	8	55.00	8	55.00
U.S. Total	2,088	53.31	553	56.00	3,187	64.85	5,828	59.88

1 Mines that produce greater than 50 percent of their coal by continuous mining methods.

2 Mines that produce greater than 50 percent of their coal by conventional methods or mines that produce coal using shortwall, scoop loading, hand loading, or other methods or a 50/50 percent continuous/conventional split in mining method.

3 Mines that have any production from the longwall mining method. A typical longwall mining operation uses 80 percent longwall mining and 20 percent continuous mining.

- = No data reported.

s = Absolute percentage less than 0.05 or value is less than 0.5 of the table metric.

Note: Recoverable coal reserves at producing mines represent the quantity of coal that can be recovered (i.e. mined) from existing coal reserves at reporting mines. Average recovery percentage represents the percentage of coal that can be recovered from coal reserves at reporting mines, weighted for all mines in the reported geographic area. Excludes mines producing less than 25,000 short tons, which are not required to provide data and refuse recovery.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mines Employment and Coal Production Report.'

Table 17. Recoverable Coal Reserves and Average Recovery Percentage at Producing U.S. Mines by Mine Production Range and Mine Type, 2016

(million short tons)

Mine Production Range (thousand short tons)	Underground		Surface		Total	
	Recoverable Coal Reserves	Average Recovery Percentage	Recoverable Coal Reserves	Average Recovery Percentage	Recoverable Coal Reserves	Average Recovery Percentage
Over 1,000	4,791	62.03	9,593	91.07	14,383	81.40
Over 500 to 1,000	397	48.60	155	84.85	552	58.80
Over 200 to 500	280	49.94	179	67.45	459	56.78
Over 100 to 200	111	54.00	1,053	81.78	1,164	79.12
Over 50 to 100	153	51.88	62	67.47	215	56.38
Over 10 to 50	97	47.73	85	67.01	182	56.77
10 or Under	s	100.00	s	71.00	s	74.08
U.S. Total	5,828	59.88	11,128	89.41	16,956	79.26

s = Absolute percentage less than 0.05 or value is less than 0.5 of the table metric.

Note: Recoverable coal reserves at producing mines represent the quantity of coal that can be recovered (i.e. mined) from existing coal reserves at reporting mines. Average recovery percentage represents the percentage of coal that can be recovered from coal reserves at reporting mines, weighted for all mines in the reported geographic area.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mines Employment and Coal Production Report.'

Employment

Table 18. Average Number of Employees by State and Mine Type, 2016 and 2015

Coal-Producing State and Region ¹	2016			2015			Percent Change		
	Underground	Surface	Total	Underground	Surface	Total	Underground	Surface	Total
Alabama	1,544	580	2,124	2,464	748	3,212	-37.3	-22.5	-33.9
Alaska	-	110	110	-	113	113	-	-2.7	-2.7
Arizona	-	385	385	-	403	403	-	-4.5	-4.5
Arkansas	56	11	67	73	2	75	-23.3	450.0	-10.7
Colorado	912	419	1,331	1,201	441	1,642	-24.1	-5.0	-18.9
Illinois	2,995	224	3,219	3,746	400	4,146	-20.0	-44.0	-22.4
Indiana	1,442	1,377	2,819	1,818	1,493	3,311	-20.7	-7.8	-14.9
Kansas	-	7	7	-	7	7	-	-	-
Kentucky Total	5,020	1,709	6,729	7,001	2,820	9,821	-28.3	-39.4	-31.5
Kentucky (East)	2,551	1,458	4,009	3,879	2,425	6,304	-34.2	-39.9	-36.4
Kentucky (West)	2,469	251	2,720	3,122	395	3,517	-20.9	-36.5	-22.7
Louisiana	-	305	305	-	307	307	-	-0.7	-0.7
Maryland	174	161	335	165	194	359	5.5	-17.0	-6.7
Mississippi	-	338	338	-	330	330	-	2.4	2.4
Missouri	-	19	19	-	15	15	-	26.7	26.7
Montana	237	920	1,157	313	1,017	1,330	-24.3	-9.5	-13.0
New Mexico	404	619	1,023	483	647	1,130	-16.4	-4.3	-9.5
North Dakota	-	1,257	1,257	-	1,261	1,261	-	-0.3	-0.3
Ohio	976	490	1,466	1,559	750	2,309	-37.4	-34.7	-36.5
Oklahoma	76	76	152	74	87	161	2.7	-12.6	-5.6
Pennsylvania Total	3,638	1,564	5,202	4,780	1,853	6,633	-23.9	-15.6	-21.6
Pennsylvania (Anthracite)	90	862	952	82	923	1,005	9.8	-6.6	-5.3
Pennsylvania (Bituminous)	3,548	702	4,250	4,698	930	5,628	-24.5	-24.5	-24.5
Tennessee	136	42	178	181	95	276	-24.9	-55.8	-35.5
Texas	-	2,561	2,561	-	2,689	2,689	-	-4.8	-4.8
Utah	1,129	49	1,178	1,158	53	1,211	-2.5	-7.5	-2.7
Virginia	1,729	688	2,417	2,166	827	2,993	-20.2	-16.8	-19.2
West Virginia Total	9,259	2,302	11,561	12,555	2,935	15,490	-26.3	-21.6	-25.4
West Virginia (Northern)	4,075	73	4,148	5,315	182	5,497	-23.3	-59.9	-24.5
West Virginia (Southern)	5,184	2,229	7,413	7,240	2,753	9,993	-28.4	-19.0	-25.8
Wyoming	279	5,477	5,756	308	6,327	6,635	-9.4	-13.4	-13.2
Appalachia Total	20,007	7,285	27,292	27,749	9,827	37,576	-27.9	-25.9	-27.4
Appalachia Central	9,600	4,417	14,017	13,466	6,100	19,566	-28.7	-27.6	-28.4
Appalachia Northern	8,863	2,288	11,151	11,819	2,979	14,798	-25.0	-23.2	-24.6
Appalachia Southern	1,544	580	2,124	2,464	748	3,212	-37.3	-22.5	-33.9
Interior Region Total	7,038	5,169	12,207	8,833	5,725	14,558	-20.3	-9.7	-16.1
Illinois Basin	6,906	1,852	8,758	8,686	2,288	10,974	-20.5	-19.1	-20.2
Other Interior	132	3,317	3,449	147	3,437	3,584	-10.2	-3.5	-3.8
Western Region Total	2,961	9,236	12,197	3,463	10,262	13,725	-14.5	-10.0	-11.1
Powder River Basin	-	5,692	5,692	-	6,633	6,633	-	-14.2	-14.2
Uinta Basin	1,931	413	2,344	2,229	435	2,664	-13.4	-5.1	-12.0
Other Western	1,030	3,131	4,161	1,234	3,194	4,428	-16.5	-2.0	-6.0
East of Mississippi River	26,913	9,475	36,388	36,435	12,445	48,880	-26.1	-23.9	-25.6
West of Mississippi River	3,093	12,215	15,308	3,610	13,369	16,979	-14.3	-8.6	-9.8
U.S. Subtotal	30,006	21,690	51,696	40,045	25,814	65,859	-25.1	-16.0	-21.5
Refuse Recovery	-	-	99	-	-	112	-	-	-11.6
U.S. Total	30,006	21,690	51,795	40,045	25,814	65,971	-25.1	-16.0	-21.5

1 For a definition of coal producing regions, see the Glossary.

-- No data reported.

Note: Includes all employees engaged in production, preparation, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers. Excludes preparation plants with less than 5,000 employee hours per year, which are not required to provide data.

Source: U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 19. Average Number of Employees at Underground and Surface Mines by State and Mine Production Range, 2016

Coal-Producing State, Region ¹ and Mine Type	Mine Production Range (thousand short tons)							Total Number of Employees	
	Above 1,000	Above 500 to 1,000	Above 200 to 500	Above 100 to 200	Above 50 to 100	Above 10 to 50	Above 0 to 10		Zero ²
Alabama	1,260	-	345	166	47	177	40	89	2,124
Underground	1,260	-	139	36	-	19	23	67	1,544
Surface	-	-	206	130	47	158	17	22	580
Alaska	-	110	-	-	-	-	-	-	110
Surface	-	110	-	-	-	-	-	-	110
Arizona	385	-	-	-	-	-	-	-	385
Surface	385	-	-	-	-	-	-	-	385
Arkansas	-	-	-	-	-	56	11	-	67
Underground	-	-	-	-	-	56	-	-	56
Surface	-	-	-	-	-	-	11	-	11
Colorado	1,149	102	-	28	52	-	-	-	1,331
Underground	758	102	-	-	52	-	-	-	912
Surface	391	-	-	28	-	-	-	-	419
Illinois	2,874	46	109	23	17	-	4	146	3,219
Underground	2,874	-	-	-	-	-	-	121	2,995
Surface	-	46	109	23	17	-	4	25	224
Indiana	2,414	-	108	45	11	39	29	173	2,819
Underground	1,180	-	34	38	-	23	27	140	1,442
Surface	1,234	-	74	7	11	16	2	33	1,377
Kansas	-	-	-	-	-	7	-	-	7
Surface	-	-	-	-	-	7	-	-	7
Kentucky Total	2,277	633	1,287	534	486	444	140	916	6,729
Underground	2,180	514	1,021	218	271	154	34	624	5,020
Surface	97	119	266	316	215	290	106	292	1,709
Kentucky (East)	184	498	1,074	525	477	437	140	662	4,009
Underground	184	450	827	218	271	154	34	409	2,551
Surface	-	48	247	307	206	283	106	253	1,458
Kentucky (West)	2,093	135	213	9	9	7	-	254	2,720
Underground	1,996	64	194	-	-	-	-	215	2,469
Surface	97	71	19	9	9	7	-	39	251
Louisiana	275	-	30	-	-	-	-	-	305
Surface	275	-	30	-	-	-	-	-	305
Maryland	-	98	20	82	26	56	14	39	335
Underground	-	98	-	37	-	-	-	39	174
Surface	-	-	20	45	26	56	14	-	161
Mississippi	215	-	-	123	-	-	-	-	338
Surface	215	-	-	123	-	-	-	-	338
Missouri	-	-	19	-	-	-	-	-	19
Surface	-	-	19	-	-	-	-	-	19
Montana	1,129	-	13	-	-	-	-	15	1,157
Underground	237	-	-	-	-	-	-	-	237
Surface	892	-	13	-	-	-	-	15	920
New Mexico	1,023	-	-	-	-	-	-	-	1,023
Underground	404	-	-	-	-	-	-	-	404
Surface	619	-	-	-	-	-	-	-	619
North Dakota	1,213	44	-	-	-	-	-	-	1,257
Surface	1,213	44	-	-	-	-	-	-	1,257
Ohio	628	268	403	29	13	40	3	82	1,466
Underground	628	165	105	-	13	25	-	40	976
Surface	-	103	298	29	-	15	3	42	490
Oklahoma	-	-	76	75	-	-	1	-	152
Underground	-	-	76	-	-	-	-	-	76
Surface	-	-	-	75	-	-	1	-	76
Pennsylvania Total	2,883	-	463	421	191	411	287	537	5,202
Underground	2,883	-	296	168	68	52	40	131	3,638
Surface	-	-	167	253	123	359	247	406	1,564
Pennsylvania (Anthracite)	-	-	45	101	73	208	121	395	952

Coal-Producing State, Region ¹ and Mine Type	Mine Production Range (thousand short tons)								Total Number of Employees
	Above 1,000	Above 500 to 1,000	Above 200 to 500	Above 100 to 200	Above 50 to 100	Above 10 to 50	Above 0 to 10	Zero ²	
Underground	-	-	-	-	-	23	40	27	90
Surface	-	-	45	101	73	185	81	368	862
Pennsylvania (Bituminous)	2,883	-	418	320	118	203	166	142	4,250
Underground	2,883	-	296	168	68	29	-	104	3,548
Surface	-	-	122	152	50	174	166	38	702
Tennessee	-	-	58	20	32	44	-	24	178
Underground	-	-	58	-	16	44	-	18	136
Surface	-	-	-	20	16	-	-	6	42
Texas	2,392	-	29	-	23	117	-	-	2,561
Surface	2,392	-	29	-	23	117	-	-	2,561
Utah	866	198	-	13	-	8	-	82	1,178
Underground	866	171	-	13	-	8	-	71	1,129
Surface	-	27	-	-	-	-	-	11	49
Virginia	794	81	505	371	141	163	64	298	2,417
Underground	794	-	317	182	110	77	46	203	1,729
Surface	-	81	188	189	31	86	18	95	688
West Virginia Total	5,049	2,726	1,431	290	336	354	84	1,291	11,561
Underground	4,313	2,317	1,131	103	188	206	57	944	9,259
Surface	736	409	300	187	148	148	27	347	2,302
West Virginia (Northern)	3,657	-	182	25	38	34	-	212	4,148
Underground	3,657	-	182	-	32	30	-	174	4,075
Surface	-	-	-	25	6	4	-	38	73
West Virginia (Southern)	1,392	2,726	1,249	265	298	320	84	1,079	7,413
Underground	656	2,317	949	103	156	176	57	770	5,184
Surface	736	409	300	162	142	144	27	309	2,229
Wyoming	5,733	-	-	-	-	-	-	23	5,756
Underground	279	-	-	-	-	-	-	-	279
Surface	5,454	-	-	-	-	-	-	23	5,477
Appalachia Total	10,798	3,671	4,299	1,904	1,263	1,682	632	3,022	27,292
Underground	10,062	3,030	2,873	744	666	577	200	1,851	20,007
Surface	736	641	1,426	1,160	597	1,105	432	1,171	7,285
Appalachia Central	2,370	3,305	2,886	1,181	948	964	288	2,063	14,017
Underground	1,634	2,767	2,151	503	553	451	137	1,400	9,600
Surface	736	538	735	678	395	513	151	663	4,417
Appalachia Northern	7,168	366	1,068	557	268	541	304	870	11,151
Underground	7,168	263	583	205	113	107	40	384	8,863
Surface	-	103	485	352	155	434	264	486	2,288
Appalachia Southern	1,260	-	345	166	47	177	40	89	2,124
Underground	1,260	-	139	36	-	19	23	67	1,544
Surface	-	-	206	130	47	158	17	22	580
Interior Region Total	10,263	181	584	275	60	226	45	573	12,207
Underground	6,050	64	304	38	-	79	27	476	7,038
Surface	4,213	117	280	237	60	147	18	97	5,169
Illinois Basin	7,381	181	430	77	37	46	33	573	8,758
Underground	6,050	64	228	38	-	23	27	476	6,906
Surface	1,331	117	202	39	37	23	6	97	1,852
Other Interior	2,882	-	154	198	23	180	12	-	3,449
Underground	-	-	76	-	-	56	-	-	132
Surface	2,882	-	78	198	23	124	12	-	3,317
Western Region Total	11,498	454	13	41	52	8	-	120	12,197
Underground	2,544	273	-	13	52	8	-	71	2,961
Surface	8,954	181	13	28	-	-	-	49	9,236
Powder River Basin	5,654	-	-	-	-	-	-	38	5,692
Surface	5,654	-	-	-	-	-	-	38	5,692
Uinta Basin	2,015	171	-	13	52	-	-	82	2,344
Underground	1,624	171	-	13	52	-	-	71	1,931
Surface	391	-	-	-	-	-	-	11	413
Other Western	3,829	283	13	28	-	8	-	-	4,161
Underground	920	102	-	-	-	8	-	-	1,030
Surface	2,909	181	13	28	-	-	-	-	3,131
East of Mississippi River	18,394	3,852	4,729	2,104	1,300	1,728	665	3,595	36,388

Coal-Producing State, Region ¹ and Mine Type	Mine Production Range (thousand short tons)							Zero ²	Total Number of Employees
	Above 1,000	Above 500 to 1,000	Above 200 to 500	Above 100 to 200	Above 50 to 100	Above 10 to 50	Above 0 to 10		
Underground	16,112	3,094	3,101	782	666	600	227	2,327	26,913
Surface	2,282	758	1,628	1,322	634	1,128	438	1,268	9,475
West of Mississippi River	14,165	454	167	116	75	188	12	120	15,308
Underground	2,544	273	76	13	52	64	-	71	3,093
Surface	11,621	181	91	103	23	124	12	49	12,215
U.S. Subtotal	32,559	4,306	4,896	2,220	1,375	1,916	677	3,715	51,696
Underground	18,656	3,367	3,177	795	718	664	227	2,398	30,006
Surface	13,903	939	1,719	1,425	657	1,252	450	1,317	21,690
Refuse Recovery	-	-	11	31	18	13	26	-	99
U.S. Total	32,559	4,306	4,907	2,251	1,393	1,929	703	3,715	51,795

1 For a definition of coal producing regions, see the Glossary.

2 Includes all employees at preparation plants and tipples not co-located with a mine.

- = No data reported.

Note: Includes all employees engaged in production, preparation, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers. Excludes preparation plants with less than 5,000 employee hours per year, which are not required to provide data.

Source: U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 20. Average Number of Employees at Underground and Surface Mines by State and Union Status, 2016

Coal-Producing State and Region ¹	Union		Nonunion	
	Underground	Surface	Underground	Surface
Alabama	1,442	41	79	456
Alaska	-	110	-	-
Arizona	-	385	-	-
Arkansas	-	-	56	-
Colorado	159	204	753	215
Illinois	-	7	2,995	220
Indiana	-	-	1,415	1,375
Kansas	-	-	-	7
Kentucky Total	8	9	4,910	1,422
Kentucky (East)	8	9	2,441	1,175
Kentucky (West)	-	-	2,469	247
Louisiana	-	-	-	305
Maryland	-	-	174	136
Mississippi	-	-	-	338
Missouri	-	-	-	19
Montana	-	672	237	248
New Mexico	404	370	-	249
North Dakota	-	212	-	1,045
Ohio	281	-	683	487
Oklahoma	-	-	76	75
Pennsylvania Total	1,012	273	2,573	1,001
Pennsylvania (Anthracite)	-	272	50	531
Pennsylvania (Bituminous)	1,012	1	2,523	470
Tennessee	-	-	115	42
Texas	-	1,383	-	1,178
Utah	16	-	1,113	38
Virginia	52	6	1,568	668
West Virginia Total	2,955	218	6,175	1,967
West Virginia (Northern)	2,357	-	1,718	69
West Virginia (Southern)	598	218	4,457	1,898
Wyoming	279	525	-	4,952
Appalachia Total	5,750	547	13,808	5,932
Appalachia Central	658	233	8,581	3,783
Appalachia Northern	3,650	273	5,148	1,693
Appalachia Southern	1,442	41	79	456
Interior Region Total	-	1,390	7,011	3,764
Illinois Basin	-	7	6,879	1,842
Other Interior	-	1,383	132	1,922
Western Region Total	858	2,478	2,103	6,747
Powder River Basin	-	659	-	5,033
Uinta Basin	175	176	1,756	226
Other Western	683	1,643	347	1,488
East of Mississippi River	5,750	554	20,687	8,112
West of Mississippi River	858	3,861	2,235	8,331
U.S. Total	6,608	4,415	22,922	16,443

¹ For a definition of coal producing regions, see the Glossary.

- = No data reported.

Note: Includes all employees at preparation plants and tipples not co-located with a mine. Includes all employees engaged in production, preparation, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers. Excludes mines producing less than 25,000 short tons and preparation plants with less than 5,000 employee hours per year, which are not required to provide data.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Productivity

Table 21. Coal Productivity by State and Mine Type, 2016 and 2015

Coal-Producing State, Region ¹ and Mine Type	Number of Mining Operations ²			Number of Employees ³			Average Production per Employee Hour (short tons) ⁴		
	2016	2015	Percent Change	2016	2015	Percent Change	2016	2015	Percent Change
Alabama	37	45	-17.8	2,124	3,212	-33.9	2.12	1.69	25.2
Underground	11	13	-15.4	1,544	2,464	-37.3	2.21	1.63	35.6
Surface	26	32	-18.8	580	748	-22.5	1.87	1.92	-2.8
Alaska	1	1	-	110	113	-2.7	4.51	4.62	-2.3
Surface	1	1	-	110	113	-2.7	4.51	4.62	-2.3
Arizona	1	1	-	385	403	-4.5	5.96	6.97	-14.5
Surface	1	1	-	385	403	-4.5	5.96	6.97	-14.5
Arkansas	3	2	50.0	67	75	-10.7	0.38	0.56	-32.3
Underground	1	1	-	56	73	-23.3	0.35	0.56	-37.2
Surface	2	1	100.0	11	2	450.0	0.48	0.19	148.3
Colorado	8	9	-11.1	1,331	1,642	-18.9	4.49	5.54	-19.1
Underground	5	5	-	912	1,201	-24.1	4.46	5.21	-14.4
Surface	3	4	-25.0	419	441	-5.0	4.54	6.50	-30.1
Illinois	29	31	-6.5	3,219	4,146	-22.4	5.89	6.09	-3.2
Underground	17	19	-10.5	2,995	3,746	-20.0	6.01	6.24	-3.7
Surface	12	12	-	224	400	-44.0	4.32	4.67	-7.5
Indiana	26	30	-13.3	2,819	3,311	-14.9	4.46	4.38	2.0
Underground	12	12	-	1,442	1,818	-20.7	3.75	3.67	2.1
Surface	14	18	-22.2	1,377	1,493	-7.8	5.20	5.21	-0.3
Kansas	1	1	-	7	7	-	20.19	12.26	64.6
Surface	1	1	-	7	7	-	20.19	12.26	64.6
Kentucky Total	232	307	-24.4	6,729	9,821	-31.5	2.94	2.92	0.9
Underground	99	130	-23.8	5,020	7,001	-28.3	2.88	2.77	4.1
Surface	133	177	-24.9	1,709	2,820	-39.4	3.17	3.35	-5.4
Kentucky (East)	207	279	-25.8	4,009	6,304	-36.4	2.03	2.23	-9.0
Underground	84	111	-24.3	2,551	3,879	-34.2	1.73	1.82	-5.1
Surface	123	168	-26.8	1,458	2,425	-39.9	2.67	2.95	-9.8
Kentucky (West)	25	28	-10.7	2,720	3,517	-22.7	4.13	3.92	5.3
Underground	15	19	-21.1	2,469	3,122	-20.9	3.99	3.75	6.3
Surface	10	9	11.1	251	395	-36.5	5.64	5.51	2.3
Louisiana	2	2	-	305	307	-0.7	3.86	5.23	-26.2
Surface	2	2	-	305	307	-0.7	3.86	5.23	-26.2
Maryland	18	19	-5.3	335	359	-6.7	2.30	2.56	-10.3
Underground	3	3	-	174	165	5.5	1.92	1.83	4.9
Surface	15	16	-6.3	161	194	-17.0	2.72	3.13	-13.2
Mississippi	2	2	-	338	330	2.4	4.76	5.59	-14.8
Surface	2	2	-	338	330	2.4	4.76	5.59	-14.8
Missouri	1	1	-	19	15	26.7	5.45	3.52	54.8
Surface	1	1	-	19	15	26.7	5.45	3.52	54.8
Montana	7	6	16.7	1,157	1,330	-13.0	14.26	15.76	-9.5
Underground	1	1	-	237	313	-24.3	11.09	9.49	16.9
Surface	6	5	20.0	920	1,017	-9.5	15.17	17.91	-15.3
New Mexico	3	3	-	1,023	1,130	-9.5	6.68	8.55	-21.8
Underground	1	1	-	404	483	-16.4	5.82	6.83	-14.7
Surface	2	2	-	619	647	-4.3	7.19	9.77	-26.4
North Dakota	5	4	25.0	1,257	1,261	-0.3	11.80	11.79	0.1
Surface	5	4	25.0	1,257	1,261	-0.3	11.80	11.79	0.1
Ohio	26	34	-23.5	1,466	2,309	-36.5	4.15	3.59	15.5
Underground	12	15	-20.0	976	1,559	-37.4	4.57	3.71	23.1
Surface	14	19	-26.3	490	750	-34.7	3.28	3.32	-1.1
Oklahoma	4	5	-20.0	152	161	-5.6	1.71	1.84	-7.0
Underground	1	1	-	76	74	2.7	1.86	1.86	0.1
Surface	3	4	-25.0	76	87	-12.6	1.54	1.82	-15.8
Pennsylvania Total	228	258	-11.6	5,202	6,633	-21.6	4.26	3.61	18.2
Underground	62	70	-11.4	3,638	4,780	-23.9	5.25	4.32	21.5
Surface	166	188	-11.7	1,564	1,853	-15.6	1.53	1.65	-7.7

Coal-Producing State, Region ¹ and Mine Type	Number of Mining Operations ²			Number of Employees ³			Average Production per Employee Hour (short tons) ⁴		
	2016	2015	Percent Change	2016	2015	Percent Change	2016	2015	Percent Change
Pennsylvania (Anthracite)	92	94	-2.1	952	1,005	-5.3	0.83	0.94	-11.7
Underground	21	17	23.5	90	82	9.8	0.58	0.57	0.6
Surface	71	77	-7.8	862	923	-6.6	0.86	0.97	-11.8
Pennsylvania (Bituminous)	136	164	-17.1	4,250	5,628	-24.5	4.95	4.07	21.6
Underground	41	53	-22.6	3,548	4,698	-24.5	5.34	4.38	22.1
Surface	95	111	-14.4	702	930	-24.5	2.45	2.39	2.5
Tennessee	8	12	-33.3	178	276	-35.5	1.84	1.69	8.9
Underground	5	5	-	136	181	-24.9	1.59	1.46	8.5
Surface	3	7	-57.1	42	95	-55.8	2.64	2.18	21.3
Texas	14	14	-	2,561	2,689	-4.8	7.02	6.28	11.8
Surface	14	14	-	2,561	2,689	-4.8	7.02	6.28	11.8
Utah	15	17	-11.8	1,178	1,211	-2.7	5.66	5.66	0.1
Underground	12	14	-14.3	1,129	1,158	-2.5	5.67	5.87	-3.4
Surface	3	3	-	49	53	-7.5	5.39	2.15	151.1
Virginia	76	89	-14.6	2,417	2,993	-19.2	2.46	2.16	13.7
Underground	36	45	-20.0	1,729	2,166	-20.2	2.36	2.03	16.4
Surface	40	44	-9.1	688	827	-16.8	2.70	2.53	6.8
West Virginia Total	204	234	-12.8	11,561	15,490	-25.4	3.19	2.77	15.0
Underground	113	128	-11.7	9,259	12,555	-26.3	3.19	2.69	18.5
Surface	91	106	-14.2	2,302	2,935	-21.6	3.18	3.12	2.0
West Virginia (Northern)	28	39	-28.2	4,148	5,497	-24.5	4.75	3.89	22.1
Underground	21	25	-16.0	4,075	5,315	-23.3	4.79	3.93	22.0
Surface	7	14	-50.0	73	182	-59.9	1.79	2.57	-30.3
West Virginia (Southern)	176	195	-9.7	7,413	9,993	-25.8	2.28	2.15	6.0
Underground	92	103	-10.7	5,184	7,240	-28.4	1.88	1.77	6.0
Surface	84	92	-8.7	2,229	2,753	-19.0	3.22	3.15	2.2
Wyoming	17	16	6.3	5,756	6,635	-13.2	25.66	27.38	-6.3
Underground	1	1	-	279	308	-9.4	1.90	4.43	-57.0
Surface	16	15	6.7	5,477	6,327	-13.4	26.99	28.61	-5.7
Appalachia Total	804	970	-17.1	27,292	37,576	-27.4	3.10	2.72	14.2
Underground	326	390	-16.4	20,007	27,749	-27.9	3.27	2.73	19.6
Surface	478	580	-17.6	7,285	9,827	-25.9	2.60	2.67	-2.6
Appalachia Central	467	575	-18.8	14,017	19,566	-28.4	2.24	2.17	3.1
Underground	217	264	-17.8	9,600	13,466	-28.7	1.92	1.82	5.4
Surface	250	311	-19.6	4,417	6,100	-27.6	2.97	2.99	-0.6
Appalachia Northern	300	350	-14.3	11,151	14,798	-24.6	4.38	3.69	18.7
Underground	98	113	-13.3	8,863	11,819	-25.0	4.90	4.03	21.6
Surface	202	237	-14.8	2,288	2,979	-23.2	2.03	2.22	-8.4
Appalachia Southern	37	45	-17.8	2,124	3,212	-33.9	2.12	1.69	25.2
Underground	11	13	-15.4	1,544	2,464	-37.3	2.21	1.63	35.6
Surface	26	32	-18.8	580	748	-22.5	1.87	1.92	-2.8
Interior Region Total	107	116	-7.8	12,207	14,558	-16.1	5.22	5.05	3.3
Underground	46	52	-11.5	7,038	8,833	-20.3	4.75	4.70	1.0
Surface	61	64	-4.7	5,169	5,725	-9.7	5.90	5.65	4.5
Illinois Basin	80	89	-10.1	8,758	10,974	-20.2	4.88	4.84	0.8
Underground	44	50	-12.0	6,906	8,686	-20.5	4.81	4.76	1.1
Surface	36	39	-7.7	1,852	2,288	-19.1	5.15	5.17	-0.4
Other Interior	27	27	-	3,449	3,584	-3.8	6.13	5.77	6.4
Underground	2	2	-	132	147	-10.2	1.35	1.29	4.8
Surface	25	25	-	3,317	3,437	-3.5	6.34	6.00	5.8
Western Region Total	57	57	-	12,197	13,725	-11.1	16.40	17.92	-8.5
Underground	20	22	-9.1	2,961	3,463	-14.5	5.37	5.97	-9.9
Surface	37	35	5.7	9,236	10,262	-10.0	20.09	22.04	-8.9
Powder River Basin	18	16	12.5	5,692	6,633	-14.2	27.62	29.34	-5.9
Surface	18	16	12.5	5,692	6,633	-14.2	27.62	29.34	-5.9
Uinta Basin	19	22	-13.6	2,344	2,664	-12.0	5.09	5.77	-11.8
Underground	15	17	-11.8	1,931	2,229	-13.4	5.24	5.68	-7.7
Surface	4	5	-20.0	413	435	-5.1	4.34	6.24	-30.4
Other Western	20	19	5.3	4,161	4,428	-6.0	7.81	8.36	-6.6
Underground	5	5	-	1,030	1,234	-16.5	5.63	6.48	-13.0

Coal-Producing State, Region ¹ and Mine Type	Number of Mining Operations ²			Number of Employees ³			Average Production per Employee Hour (short tons) ⁴		
	2016	2015	Percent Change	2016	2015	Percent Change	2016	2015	Percent Change
Surface	15	14	7.1	3,131	3,194	-2.0	8.54	9.11	-6.3
East of Mississippi River	886	1,061	-16.5	36,388	48,880	-25.6	3.57	3.24	10.2
Underground	370	440	-15.9	26,913	36,435	-26.1	3.68	3.24	13.7
Surface	516	621	-16.9	9,475	12,445	-23.9	3.22	3.24	-0.5
West of Mississippi River	82	82	-	15,308	16,979	-9.8	14.20	15.51	-8.5
Underground	22	24	-8.3	3,093	3,610	-14.3	5.18	5.74	-9.7
Surface	60	58	3.4	12,215	13,369	-8.6	16.54	18.20	-9.1
U.S. Subtotal	968	1,143	-15.3	51,696	65,859	-21.5	6.61	6.28	5.3
Underground	392	464	-15.5	30,006	40,045	-25.1	3.83	3.45	11.0
Surface	576	679	-15.2	21,690	25,814	-16.0	10.73	10.95	-1.9
Refuse Recovery	18	25	-28.0	99	112	-11.6	5.55	8.99	-38.3
U.S. Total	986	1,168	-15.6	51,795	65,971	-21.5	6.61	6.28	5.2

1 For a definition of coal producing regions, see the Glossary.

2 Mining operations that consist of a mine and preparation plant or preparation plant processing both underground and surface coal are reported as two operations.

3 Includes all employees engaged in production, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers.

4 Calculated by dividing total coal production by the total labor hours worked by all employees engaged in production, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers.

- = No data reported.

Note: Excludes preparation plants with less than 5,000 employee hours per year, which are not required to provide data.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 22. Underground Coal Mining Productivity by State and Mining Method, 2016

(short tons produced per employee hour)

Coal-Producing State, Region ¹ and Mine Type	Continuous ²	Conventional and Other ³	Longwall ⁴	Total
Alabama	1.42	-	2.25	2.22
Arkansas	0.35	-	-	0.35
Colorado	2.24	-	4.88	4.46
Illinois	4.66	10.63	6.16	6.01
Indiana	3.96	-	-	3.82
Kentucky Total	2.89	-	-	2.89
Kentucky (East)	1.74	-	-	1.74
Kentucky (West)	3.99	-	-	3.99
Maryland	1.92	-	-	1.92
Montana	-	-	11.09	11.09
New Mexico	-	-	5.82	5.82
Ohio	2.43	-	5.71	4.60
Oklahoma	1.86	-	-	1.86
Pennsylvania Total	2.54	-	6.43	5.29
Pennsylvania (Anthracite)	0.47	-	-	0.47
Pennsylvania (Bituminous)	2.63	-	6.43	5.35
Tennessee	1.68	-	-	1.68
Utah	3.63	-	6.14	5.67
Virginia	1.53	-	4.31	2.39
West Virginia Total	1.78	-	4.70	3.20
West Virginia (Northern)	1.52	-	5.34	4.79
West Virginia (Southern)	1.81	-	2.22	1.89
Wyoming	-	-	1.90	1.90
Appalachia Total	1.84	-	4.83	3.29
Appalachia Central	1.75	-	2.98	1.94
Appalachia Northern	2.20	-	5.78	4.92
Appalachia Southern	1.42	-	2.25	2.22
Interior Region Total	4.12	10.63	6.16	4.76
Illinois Basin	4.19	10.63	6.16	4.83
Other Interior	1.35	-	-	1.35
Western Region Total	3.05	-	5.69	5.37
Uinta Basin	3.11	-	5.55	5.24
Other Western	2.92	-	5.96	5.63
East of Mississippi River	2.71	10.63	4.94	3.71
West of Mississippi River	2.55	-	5.69	5.18
U.S. Total	2.70	10.63	5.08	3.85

1 For a definition of coal producing regions, see the Glossary.

2 Mines that produce greater than 50 percent of their coal by continuous mining methods.

3 Mines that produce greater than 50 percent of their coal by conventional mining methods or mines that produce coal using shortwall, scoop loading, hand loading, or other methods or a 50/50 percent continuous/conventional split in mining method.

4 Mines that have any production from longwall mining method. A typical longwall mining operation use 80 percent longwall mining and 20 percent continuous mining.

- = No data reported.

Note: For each State, stand alone preparation plant hours are distributed across mining methods by the proportion of underground hours for all stand alone mines. Productivity is calculated by dividing total coal production by the total direct labor hours worked by all employees engaged in production, preparation, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers. Excludes mines producing less than 25,000 short tons of coal and preparation plants with less than 5,000 employee hours during the year, which are not required to provide data.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 23. Coal Mining Productivity by State, Mine Type, and Mine Production Range, 2016

(short tons produced per employee hour)

Coal-Producing State, Region ¹ and Mine Type	Mine Production Range (thousand short tons)							Total ²
	Above 1,000	Above 500 to 1,000	Above 200 to 500	Above 100 to 200	Above 50 to 100	Above 10 to 50	10 or Under	
Alabama	2.50	-	1.72	1.73	2.30	1.58	0.54	2.12
Underground	2.50	-	1.04	2.08	-	0.79	0.26	2.21
Surface	-	-	2.15	1.64	2.30	1.79	0.71	1.87
Alaska	-	4.51	-	-	-	-	-	4.51
Surface	-	4.51	-	-	-	-	-	4.51
Arizona	5.96	-	-	-	-	-	-	5.96
Surface	5.96	-	-	-	-	-	-	5.96
Arkansas	-	-	-	-	-	0.35	0.48	0.38
Underground	-	-	-	-	-	0.35	-	0.35
Surface	-	-	-	-	-	-	0.48	0.48
Colorado	4.78	2.97	-	4.03	0.67	-	-	4.49
Underground	4.88	2.97	-	-	0.67	-	-	4.46
Surface	4.57	-	-	4.03	-	-	-	4.54
Illinois	6.24	5.35	5.09	3.74	4.04	-	0.49	5.89
Underground	6.24	-	-	-	-	-	-	6.01
Surface	-	5.35	5.09	3.74	4.04	-	0.49	4.32
Indiana	4.89	-	4.23	4.47	3.81	0.52	0.10	4.46
Underground	4.31	-	3.38	2.92	-	0.38	0.6	3.75
Surface	5.45	-	4.61	6.87	3.81	0.62	3.24	5.20
Kansas	-	-	-	-	-	20.19	-	20.19
Surface	-	-	-	-	-	20.19	-	20.19
Kentucky Total	4.39	2.98	2.50	3.03	2.54	1.69	0.77	2.94
Underground	4.26	2.44	2.06	2.21	1.92	1.09	0.47	2.88
Surface	7.74	5.46	4.00	3.70	3.44	2.05	0.87	3.17
Kentucky (East)	2.80	2.38	2.40	3.00	2.51	1.65	0.77	2.03
Underground	2.80	2.14	1.91	2.21	1.92	1.09	0.47	1.73
Surface	-	4.61	3.95	3.67	3.42	1.99	0.87	2.67
Kentucky (West)	4.53	5.55	3.21	4.53	3.76	4.47	-	4.13
Underground	4.39	4.90	3.01	-	-	-	-	3.99
Surface	7.74	6.15	4.59	4.53	3.76	4.47	-	5.64
Louisiana	3.86	-	3.89	-	-	-	-	3.86
Surface	3.86	-	3.89	-	-	-	-	3.86
Maryland	-	2.36	4.63	2.78	3.09	1.80	0.85	2.30
Underground	-	2.36	-	2.70	-	-	-	1.92
Surface	-	-	4.63	2.84	3.09	1.80	0.85	2.72
Mississippi	6.35	-	-	0.62	-	-	-	4.76
Surface	6.35	-	-	0.62	-	-	-	4.76
Missouri	-	-	5.45	-	-	-	-	5.45
Surface	-	-	5.45	-	-	-	-	5.45
Montana	14.34	-	12.39	-	-	-	-	14.26
Underground	11.09	-	-	-	-	-	-	11.09
Surface	15.29	-	12.39	-	-	-	-	15.17
New Mexico	6.68	-	-	-	-	-	-	6.68
Underground	5.82	-	-	-	-	-	-	5.82
Surface	7.19	-	-	-	-	-	-	7.19
North Dakota	11.91	9.27	-	-	-	-	-	11.80
Surface	11.91	9.27	-	-	-	-	-	11.80
Ohio	5.71	3.22	3.33	1.67	3.99	2.08	1.80	4.15
Underground	5.71	2.23	3.02	-	3.99	1.68	-	4.57
Surface	-	4.74	3.43	1.67	-	2.67	1.80	3.28
Oklahoma	-	-	1.86	1.54	-	-	0.72	1.71
Underground	-	-	1.86	-	-	-	-	1.86
Surface	-	-	-	1.54	-	-	0.72	1.54
Pennsylvania Total	5.83	-	3.19	2.85	3.12	1.87	0.92	4.26
Underground	5.83	-	3.39	3.50	3.89	1.99	0.74	5.25
Surface	-	-	2.86	2.49	2.69	1.86	0.97	1.53

Coal-Producing State, Region ¹ and Mine Type	Mine Production Range (thousand short tons)							Total ²
	Above 1,000	Above 500 to 1,000	Above 200 to 500	Above 100 to 200	Above 50 to 100	Above 10 to 50	10 or Under	
Pennsylvania (Anthracite)	-	-	1.97	1.66	2.83	1.32	0.70	0.83
Underground	-	-	-	-	-	1.09	0.74	0.58
Surface	-	-	1.97	1.66	2.83	1.35	0.67	0.86
Pennsylvania (Bituminous)	5.83	-	3.34	3.27	3.28	2.55	1.18	4.95
Underground	5.83	-	3.39	3.50	3.89	3.02	-	5.34
Surface	-	-	3.22	3.06	2.54	2.48	1.18	2.45
Tennessee	-	-	2.55	2.88	2.39	0.85	-	1.84
Underground	-	-	2.55	-	1.44	0.85	-	1.59
Surface	-	-	-	2.88	3.94	-	-	2.64
Texas	7.49	-	3.92	-	1.62	0.15	-	7.02
Surface	7.49	-	3.92	-	1.62	0.15	-	7.02
Utah	6.50	4.64	-	8.17	-	2.22	-	5.66
Underground	6.50	3.83	-	8.17	-	2.22	-	5.67
Surface	-	8.21	-	-	-	-	-	5.39
Virginia	3.53	2.78	2.73	2.31	1.69	1.49	0.48	2.46
Underground	3.53	-	1.85	1.73	1.33	1.16	0.92	2.36
Surface	-	2.78	4.20	2.93	3.59	1.70	0.15	2.70
West Virginia Total	4.82	2.40	2.16	2.72	1.88	1.52	0.54	3.19
Underground	4.90	2.17	1.77	2.40	1.44	1.26	0.39	3.19
Surface	4.34	3.59	3.66	2.84	2.35	1.88	1.02	3.18
West Virginia (Northern)	5.24	-	1.56	3.00	2.41	1.36	-	4.75
Underground	5.24	-	1.56	-	2.18	0.97	-	4.79
Surface	-	-	-	3.00	2.99	6.85	-	1.79
West Virginia (Southern)	3.76	2.40	2.26	2.69	1.82	1.54	0.54	2.28
Underground	3.09	2.17	1.81	2.40	1.32	1.32	0.39	1.88
Surface	4.34	3.59	3.66	2.82	2.31	1.79	1.02	3.22
Wyoming	25.71	-	-	-	-	-	-	25.66
Underground	1.90	-	-	-	-	-	-	1.90
Surface	27.04	-	-	-	-	-	-	26.99
Appalachia Total	4.74	2.45	2.47	2.63	2.34	1.67	0.78	3.10
Underground	4.77	2.17	1.99	2.38	1.89	1.24	0.58	3.27
Surface	4.34	3.72	3.42	2.79	2.89	1.88	0.87	2.60
Appalachia Central	3.61	2.40	2.40	2.71	2.15	1.55	0.63	2.24
Underground	3.27	2.16	1.87	2.06	1.61	1.16	0.53	1.92
Surface	4.34	3.56	3.90	3.21	3.02	1.88	0.72	2.97
Appalachia Northern	5.52	2.97	2.94	2.78	3.07	1.86	0.93	4.38
Underground	5.52	2.29	2.67	3.35	3.50	1.65	0.74	4.90
Surface	-	4.74	3.28	2.50	2.80	1.90	0.97	2.03
Appalachia Southern	2.50	-	1.72	1.73	2.30	1.58	0.54	2.12
Underground	2.50	-	1.04	2.08	-	0.79	0.26	2.21
Surface	-	-	2.15	1.64	2.30	1.79	0.71	1.87
Interior Region Total	5.76	5.49	3.70	2.02	3.19	0.39	0.23	5.22
Underground	5.23	4.90	2.65	2.92	-	0.36	0.6	4.75
Surface	6.56	5.80	4.71	1.93	3.19	0.40	0.55	5.90
Illinois Basin	5.30	5.49	4.04	4.22	3.90	0.89	0.13	4.88
Underground	5.23	4.90	3.08	2.92	-	0.38	0.6	4.81
Surface	5.61	5.80	4.86	4.76	3.90	1.22	0.79	5.15
Other Interior	7.03	-	2.95	1.09	1.62	0.26	0.49	6.13
Underground	-	-	1.86	-	-	0.35	-	1.35
Surface	7.03	-	4.30	1.09	1.62	0.23	0.49	6.34
Western Region Total	17.15	4.70	12.39	5.31	0.67	2.22	-	16.40
Underground	5.81	3.51	-	8.17	0.67	2.22	-	5.37
Surface	20.52	6.47	12.39	4.03	-	-	-	20.09
Powder River Basin	27.69	-	-	-	-	-	-	27.62
Surface	27.69	-	-	-	-	-	-	27.62
Uinta Basin	5.51	3.83	-	8.17	0.67	-	-	5.09
Underground	5.72	3.83	-	8.17	0.67	-	-	5.24
Surface	4.57	-	-	-	-	-	-	4.34
Other Western	8.03	5.22	12.39	4.03	-	2.22	-	7.81
Underground	5.96	2.97	-	-	-	2.22	-	5.63
Surface	8.69	6.47	12.39	4.03	-	-	-	8.54

Coal-Producing State, Region ¹ and Mine Type	Mine Production Range (thousand short tons)							Total ²
	Above 1,000	Above 500 to 1,000	Above 200 to 500	Above 100 to 200	Above 50 to 100	Above 10 to 50	10 or Under	
East of Mississippi River	4.99	2.59	2.60	2.61	2.40	1.63	0.72	3.57
Underground	4.95	2.23	2.05	2.39	1.89	1.20	0.45	3.68
Surface	5.25	4.04	3.59	2.73	2.96	1.86	0.87	3.22
West of Mississippi River	15.13	4.70	3.54	2.59	0.93	0.34	0.49	14.20
Underground	5.81	3.51	1.86	8.17	0.67	0.59	-	5.18
Surface	17.22	6.47	5.37	2.07	1.62	0.23	0.49	16.54
U.S. Subtotal	9.14	2.80	2.63	2.60	2.32	1.45	0.71	6.61
Underground	5.06	2.32	2.05	2.46	1.80	1.12	0.45	3.83
Surface	15.06	4.47	3.68	2.68	2.92	1.61	0.85	10.73
Refuse Recovery	-	-	15.40	7.59	12.33	2.34	0.28	5.55
U.S. Total	9.14	2.80	2.65	2.67	2.36	1.45	0.68	6.61

1 For a definition of coal producing regions, see the Glossary.

2 Includes all employees at preparation plants and tipples not co-located with a mine.

- = No data reported.

Note: Productivity is calculated by dividing total coal production by the total labor hours worked by all employees engaged in production, preparation, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers. Excludes preparation plants with less than 5,000 employee hours during the year, which are not required to provide data.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Table 24. Coal Mining Productivity by State, Mine Type, and Union Status, 2016

(short tons produced per employee hour)

Coal-Producing State and Region ¹	Union		Nonunion	
	Underground	Surface	Underground	Surface
Alabama	2.27	1.24	1.20	2.02
Alaska	-	4.51	-	-
Arizona	-	5.96	-	-
Arkansas	-	-	0.35	-
Colorado	4.17	4.96	4.52	4.16
Illinois	-	-	6.01	4.36
Indiana	-	-	3.82	5.20
Kansas	-	-	-	20.19
Kentucky Total	-	-	2.90	3.38
Kentucky (East)	-	-	1.75	2.86
Kentucky (West)	-	-	3.99	5.69
Louisiana	-	-	-	3.86
Maryland	-	-	1.92	3.00
Mississippi	-	-	-	4.76
Missouri	-	-	-	5.45
Montana	-	12.66	11.09	22.29
New Mexico	5.82	5.62	-	9.39
North Dakota	-	12.70	-	11.61
Ohio	4.69	-	4.56	3.29
Oklahoma	-	-	1.86	1.54
Pennsylvania Total	5.14	0.82	5.34	1.65
Pennsylvania (Anthracite)	-	0.82	0.48	0.81
Pennsylvania (Bituminous)	5.14	-	5.42	2.55
Tennessee	-	-	1.68	2.64
Texas	-	8.17	-	5.70
Utah	-	-	5.76	6.54
Virginia	-	-	2.47	2.80
West Virginia Total	4.76	2.29	2.45	3.32
West Virginia (Northern)	5.62	-	3.67	1.68
West Virginia (Southern)	1.35	2.29	1.96	3.36
Wyoming	1.90	6.44	-	29.09
Appalachian Total	4.14	1.48	2.95	2.79
Appalachia Central	1.23	2.16	1.99	3.11
Appalachia Northern	5.42	0.82	4.57	2.24
Appalachia Southern	2.27	1.24	1.20	2.02
Interior Region Total	-	8.17	4.76	5.12
Illinois Basin	-	-	4.83	5.16
Other Interior	-	8.17	1.35	5.07
Western Region Total	3.99	8.17	5.91	24.53
Powder River Basin	-	12.66	-	29.51
Uinta Basin	3.76	5.08	5.38	3.98
Other Western	4.05	6.79	8.55	10.55
East of Mississippi River	4.14	1.48	3.59	3.43
West of Mississippi River	3.99	8.17	5.61	20.50
U.S. Total	4.12	7.35	3.78	11.90

¹ For a definition of coal producing regions, see the Glossary.

- = No data reported.

Note: Productivity is calculated by dividing total coal production by the total direct labor hours worked by all employees engaged in production, preparation, processing, development, maintenance, repair shop, or yard work at mining operations, including office workers. Excludes mines producing less than 25,000 short tons of coal and preparation plants with less than 5,000 employee hours during the year, which are not required to provide data.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and U.S. Department of Labor, Mine Safety and Health Administration Form 7000-2, 'Quarterly Mine Employment and Coal Production Report.'

Domestic Markets

Table 25. Intentionally left blank

Table 26. U.S. Coal Consumption by End Use Sector, Census Division, and State, 2016 and 2015

(thousand short tons)

Census Division and State	2016				2015				Total		Percent Change
	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	2016	2015	
New England	1,300	21	-	-	1,844	75	-	-	1,320	1,918	-31.2
Connecticut	128	-	-	-	359	-	-	-	128	359	-64.2
Maine	70	17	-	-	74	30	-	-	87	104	-16.0
Massachusetts	907	4	-	-	1,005	45	-	-	911	1,050	-13.3
New Hampshire	194	-	-	-	406	-	-	-	194	406	-52.2
Rhode Island	s	-	-	-	s	-	-	-	s	s	-
Middle Atlantic	28,849	1,645	4,694	39	33,322	2,071	6,219	75	35,227	41,687	-15.5
New Jersey	667	-	-	-	893	-	-	-	667	893	-25.3
New York	654	410	111	-	1,038	572	151	-	1,175	1,761	-33.3
Pennsylvania	27,528	1,235	4,582	39	31,391	1,499	6,068	75	33,385	39,033	-14.5
East North Central	142,670	7,011	8,947	252	164,116	7,449	10,584	308	158,881	182,457	-12.9
Illinois	35,431	2,510	969	105	43,446	2,690	1,042	97	39,015	47,274	-17.5
Indiana	36,085	2,209	3,854	67	39,106	1,554	4,515	62	42,214	45,237	-6.7
Michigan	23,126	704	812	14	29,487	929	1,463	47	24,656	31,925	-22.8
Ohio	29,057	707	3,313	45	30,518	1,062	3,564	82	33,121	35,226	-6.0
Wisconsin	18,972	881	-	21	21,559	1,214	-	20	19,875	22,793	-12.8
West North Central	114,422	12,185	-	254	123,903	12,863	-	321	126,861	137,087	-7.5
Iowa	14,289	2,485	-	130	16,840	2,849	-	173	16,904	19,863	-14.9
Kansas	14,587	104	-	-	15,851	115	-	-	14,690	15,967	-8.0
Minnesota	13,686	1,055	-	10	14,459	957	-	8	14,752	15,425	-4.4
Missouri	35,594	711	-	55	38,468	951	-	67	36,361	39,487	-7.9
Nebraska	13,056	1,113	-	-	14,508	1,175	-	-	14,169	15,683	-9.7
North Dakota	21,807	6,505	-	58	22,786	6,619	-	72	28,370	29,477	-3.8
South Dakota	1,403	212	-	-	990	197	-	-	1,615	1,187	36.1
South Atlantic	104,055	3,578	1,590	154	105,904	4,243	1,702	200	109,377	112,050	-2.4
Delaware	227	102	-	-	276	-	-	-	329	276	19.0
District of Columbia	-	-	-	1	-	-	-	2	1	2	-23.8
Florida	17,701	500	-	-	19,157	576	-	-	18,202	19,733	-7.8
Georgia	19,272	432	-	-	19,307	463	-	2	19,704	19,772	-0.3
Maryland	5,993	554	-	-	6,036	681	-	1	6,547	6,718	-2.6
North Carolina	14,802	526	-	119	15,666	552	-	145	15,447	16,364	-5.6
South Carolina	8,683	324	-	-	9,277	439	-	s	9,007	9,716	-7.3
Virginia	7,828	613	1,016	34	7,961	683	1,025	50	9,491	9,719	-2.3
West Virginia	29,549	526	574	-	28,223	849	677	-	30,650	29,750	3.0
East South Central	69,904	3,800	1,253	14	75,203	4,592	1,204	21	74,971	81,019	-7.5
Alabama	17,448	1,105	1,253	-	21,025	1,350	1,204	-	19,806	23,580	-16.0
Kentucky	32,071	782	-	14	34,381	996	-	15	32,867	35,391	-7.1
Mississippi	4,522	-	-	-	4,830	111	-	-	4,522	4,941	-8.5
Tennessee	15,863	1,913	-	s	14,967	2,135	-	6	17,776	17,107	3.9
West South Central	120,933	1,732	-	-	126,018	1,989	-	6	122,665	128,013	-4.2
Arkansas	14,066	200	-	-	12,815	197	-	-	14,267	13,012	9.6
Louisiana	8,567	267	-	-	10,777	239	-	-	8,834	11,016	-19.8
Oklahoma	12,170	591	-	-	15,647	602	-	-	12,761	16,249	-21.5
Texas	86,130	673	-	-	86,779	951	-	6	86,803	87,737	-1.1
Mountain	90,802	3,376	-	10	101,900	3,588	-	14	94,188	105,502	-10.7
Arizona	16,639	175	-	-	19,812	235	-	-	16,814	20,047	-16.1
Colorado	16,661	285	-	1	17,529	355	-	3	16,947	17,887	-5.3
Idaho	-	107	-	-	-	192	-	-	107	192	-44.2
Montana	9,328	261	-	2	10,277	279	-	2	9,591	10,558	-9.2
Nevada	1,192	285	-	-	1,507	301	-	-	1,478	1,808	-18.3
New Mexico	10,547	73	-	-	11,882	69	-	-	10,620	11,950	-11.1
Utah	12,001	575	-	-	14,580	662	-	-	12,576	15,242	-17.5
Wyoming	24,434	1,614	-	7	26,313	1,496	-	8	26,055	27,817	-6.3
Pacific	5,619	1,502	-	460	6,234	1,588	-	559	7,581	8,381	-9.5
Alaska	644	1	-	460	731	1	-	559	1,105	1,291	-14.4

Census Division and State	2016				2015				Total		Percent Change
	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	2016	2015	
California	s	1,389	-	-	s	1,334	-	-	1,389	1,334	4.1
Hawaii	775	12	-	-	697	50	-	-	787	747	5.4
Oregon	1,125	s	-	-	1,401	100	-	-	1,125	1,501	-25.1
Washington	3,075	100	-	-	3,405	102	-	-	3,175	3,507	-9.5
U.S. Total	678,554	34,849	16,485	1,183	738,444	38,459	19,708	1,503	731,071	798,115	-8.4

¹ The electric power sector (electric utilities and independent power producers) comprises electricity-only and combined-heat-and-power(CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public (i.e. NAICS 22 plants).

- = No data reported.

NM = Not Meaningful.

s = Absolute percentage less than 0.05 or value is less than 0.5 of the table metric.

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

Source: U.S. Energy Information Administration Form EIA-923, 'Power Plant Operations Report,' Form EIA-3, 'Quarterly Survey of Non-Electric Sector Coal Data,' and Form EIA-7A, 'Annual Survey of Coal Production and Preparation.' Prior to third quarter 2014, coke plant data was collected under Form EIA-5, 'Quarterly Coal Consumption and Quality Report - Coke Plants.'

Table 27. Year-End Coal Stocks by Sector, Census Division, and State, 2016 and 2015

(thousand short tons)

Census Division and State	2016					2015					Total		
	Electric Power ¹	Other Industrial	Commercial and Institutional	Producer and Distributor	Electric Power ¹	Other Industrial	Commercial and Institutional	Producer and Distributor	2016	2015	Percent Change		
New England	1,638	5	-	-	235	1,758	6	-	-	243	1,878	2,006	-6.4
Connecticut	w	-	-	-	-	w	-	-	-	-	w	w	-80.3
Maine	s	1	-	-	29	s	1	-	-	-	30	1	NM
Massachusetts	w	4	-	-	206	w	5	-	-	243	w	w	-15.3
New Hampshire	w	-	-	-	-	w	-	-	-	-	w	w	-1.2
Rhode Island	w	-	-	-	-	s	-	-	-	-	w	s	w
Middle Atlantic	4,927	303	304	44	977	8,166	342	797	50	1,247	6,555	10,603	-38.2
New Jersey	783	-	-	-	-	932	-	-	-	-	783	932	-15.9
New York	w	146	6	-	-	513	139	11	-	-	w	663	w
Pennsylvania	w	156	298	44	977	6,721	203	787	50	1,247	w	9,009	w
East North Central	35,636	821	1,024	62	3,435	43,926	937	1,172	93	5,656	40,977	51,785	-20.9
Illinois	7,056	143	170	19	1,455	11,111	135	137	17	2,851	8,843	14,250	-37.9
Indiana	9,703	281	194	33	821	11,491	255	367	41	1,483	11,032	13,637	-19.1
Michigan	6,024	242	366	-	65	7,743	352	347	14	58	6,697	8,514	-21.3
Ohio	8,028	26	294	6	641	8,582	37	321	18	720	8,995	9,678	-7.1
Wisconsin	4,824	129	-	3	453	4,999	158	-	3	545	5,409	5,706	-5.2
West North Central	31,091	684	-	62	2,938	31,675	925	-	66	2,265	34,775	34,932	-0.5
Iowa	8,430	127	-	35	166	6,892	189	-	37	92	8,758	7,211	21.5
Kansas	4,588	42	-	-	-	4,985	37	-	-	1	4,631	5,023	-7.8
Minnesota	4,003	157	-	11	73	4,933	283	-	12	53	4,245	5,282	-19.6
Missouri	9,547	71	-	2	1	9,764	71	-	2	-	9,620	9,837	-2.2
Nebraska	2,985	66	-	-	-	3,068	104	-	-	-	3,052	3,172	-3.8
North Dakota	w	206	-	15	2,699	w	176	-	15	2,119	w	w	4.2
South Dakota	w	14	-	-	-	w	65	-	-	-	w	w	-26.7
South Atlantic	26,825	363	144	63	4,328	35,355	525	70	72	6,688	31,723	42,710	-25.7
Delaware	w	1	-	-	-	w	-	-	-	-	w	w	17.1
District of Columbia	-	-	-	4	-	-	-	-	3	-	4	3	19.0
Florida	4,427	47	-	-	-	6,344	46	-	-	-	4,474	6,390	-30.0
Georgia	4,907	75	-	-	-	6,683	138	-	-	-	4,982	6,821	-27.0
Maryland	1,535	14	-	-	412	2,051	17	-	-	841	1,961	2,909	-32.6
North Carolina	4,986	27	-	33	-	7,621	29	-	42	-	5,045	7,691	-34.4
South Carolina	5,080	68	-	-	-	5,891	108	-	s	-	5,147	5,999	-14.2
Virginia	1,093	85	42	26	437	1,401	78	s	27	1,217	1,684	2,724	-38.2
West Virginia	w	47	102	-	3,479	w	109	70	-	4,629	w	w	-17.8
East South Central	15,918	234	203	12	2,701	18,959	251	197	11	4,546	19,069	23,963	-20.4
Alabama	3,514	104	203	-	434	4,324	84	197	-	591	4,255	5,196	-18.1
Kentucky	7,945	28	-	12	683	8,934	34	-	11	1,907	8,668	10,886	-20.4
Mississippi	1,246	-	-	-	1,560	1,706	4	-	-	2,047	2,806	3,757	-25.3
Tennessee	3,214	102	-	s	23	3,995	130	-	s	s	3,340	4,125	-19.0
West South Central	24,799	460	-	-	989	34,018	600	-	2	1,237	26,248	35,856	-26.8
Arkansas	3,877	36	-	-	-	5,056	43	-	-	-	3,913	5,099	-23.3
Louisiana	2,488	8	-	-	114	3,831	8	-	-	158	2,610	3,998	-34.7
Oklahoma	4,624	128	-	-	-	5,923	208	-	-	-	4,751	6,131	-22.5
Texas	13,811	288	-	-	875	19,208	341	-	2	1,078	14,973	20,629	-27.4
Mountain	20,154	551	-	3	9,402	20,743	555	-	4	13,778	30,110	35,080	-14.2
Arizona	3,544	52	-	-	380	4,728	41	-	-	713	3,975	5,482	-27.5
Colorado	4,363	54	-	s	659	5,605	56	-	1	2,040	5,075	7,702	-34.1
Idaho	-	271	-	-	-	-	275	-	-	-	271	275	-1.5
Montana	w	38	-	3	1,048	w	37	-	3	1,397	w	w	-16.3
Nevada	w	28	-	-	-	1,114	35	-	-	-	w	1,149	w
New Mexico	w	4	-	-	5,293	w	1	-	-	6,635	w	w	-17.9
Utah	5,279	46	-	-	382	3,941	40	-	-	470	5,706	4,451	28.2
Wyoming	4,177	59	-	s	1,640	3,329	70	-	s	2,523	5,877	5,922	-0.8
Pacific	1,489	215	-	113	304	1,314	240	-	96	210	2,122	1,860	14.1
Alaska	w	-	-	113	169	w	-	-	96	210	w	w	1.1

Census Division and State	2016					2015					Total		
	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	Producer and Distributor	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	Producer and Distributor	2016	2015	Percent Change
California	s	163	-	-	135	s	213	-	-	-	298	213	39.9
Hawaii	w	16	-	-	-	w	18	-	-	-	w	w	75.0
Oregon	w	34	-	-	-	w	3	-	-	-	w	w	-14.8
Washington	w	2	-	-	-	w	6	-	-	-	w	w	45.4
U.S. Total	162,476	3,637	1,675	360	25,309	195,912	4,382	2,236	394	35,871	193,457	238,795	-19.0

¹ The electric power sector (electric utilities and independent power producers) comprises electricity-only and combined-heat-and-power(CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public (i.e. NAICS 22 plants). Coal stocks include waste coal.

- = No data reported.

w = Data withheld to avoid disclosure.

s = Absolute percentage less than 0.05 or value is less than 0.5 of the table metric.

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

Source: U.S. Energy Information Administration Form EIA-923, 'Power Plant Operations Report,' Form EIA-3, 'Quarterly Survey of Non-Electric Sector Coal Data,' Form EIA-7A, 'Annual Survey of Coal Production and Preparation,' and Form EIA-8A, 'Annual Survey of Coal Stocks and Coal Exports.' Prior to third quarter 2014, coke plant data was collected under Form EIA-5, 'Quarterly Coal Consumption and Quality Report - Coke Plants.'

Average Mine Sales Price

Table 28. Average Sales Price of Coal by State and Mine Type, 2016 and 2015

(dollars per short ton)

Coal-Producing State	2016			2015			Percent Change		
	Underground	Surface	Total	Underground	Surface	Total	Underground	Surface	Total
Alabama	94.42	82.49	91.86	84.59	82.39	84.05	11.6	0.1	9.3
Alaska	-	w	w	-	w	w	-	w	w
Arizona	-	w	w	-	w	w	-	w	w
Arkansas	w	-	w	w	-	w	w	-	w
Colorado	w	w	42.54	34.32	40.35	36.12	w	w	17.8
Illinois	39.22	38.75	39.20	40.48	44.39	40.77	-3.1	-12.7	-3.9
Indiana	46.82	42.84	44.55	49.05	43.70	46.12	-4.6	-2.0	-3.4
Kansas	-	w	w	-	w	w	-	w	w
Kentucky Total	52.06	46.42	50.79	55.29	54.34	55.01	-5.8	-14.6	-7.7
Kentucky (East)	58.40	51.22	55.44	63.44	58.03	60.84	-7.9	-11.7	-8.9
Kentucky (West)	49.50	35.56	47.94	51.15	43.58	50.10	-3.2	-18.4	-4.3
Louisiana	-	w	w	-	w	w	-	w	w
Maryland	w	w	57.80	w	w	53.01	w	w	9.0
Mississippi	-	w	w	-	w	w	-	w	w
Missouri	-	w	w	-	w	w	-	w	w
Montana	w	w	18.84	w	w	17.44	w	w	8.0
New Mexico	w	w	33.24	w	w	37.43	w	w	-11.2
North Dakota	-	17.95	17.95	-	17.71	17.71	-	1.4	1.4
Ohio	46.00	41.09	44.68	47.47	48.72	47.84	-3.1	-15.7	-6.6
Oklahoma	w	w	53.18	w	w	43.46	w	w	22.4
Pennsylvania Total	46.18	67.64	47.98	56.43	68.19	57.73	-18.2	-0.8	-16.9
Pennsylvania (Anthracite)	w	w	97.61	58.53	99.15	97.91	w	w	-0.3
Pennsylvania (Bituminous)	w	w	46.40	56.42	53.67	56.21	w	w	-17.5
Tennessee	w	w	60.37	w	w	66.18	w	w	-8.8
Texas	-	19.17	19.17	-	22.69	22.69	-	-15.5	-15.5
Utah	w	w	36.40	w	w	34.53	w	w	5.4
Virginia	62.77	57.05	60.96	63.39	62.24	63.04	-1.0	-8.3	-3.3
West Virginia Total	57.11	52.49	56.20	61.30	56.83	60.31	-6.8	-7.6	-6.8
West Virginia (Northern)	w	w	52.35	w	w	54.82	w	w	-4.5
West Virginia (Southern)	w	w	60.71	w	w	66.02	w	w	-8.0
Wyoming	w	w	13.74	w	w	13.92	w	w	-1.3
U.S. Total	49.02	20.47	30.57	52.20	21.47	31.83	-6.1	-4.7	-4.0

- = No data reported.

w = Data withheld to avoid disclosure.

Note: An average sales price is calculated by dividing the total free on board (f.o.b) rail/barge value of the coal sold by the total coal sold. Excludes mines producing less than 25,000 short tons, which are not required to provide data. Excludes silt, culm, refuse bank, slurry dam, and dredge operations. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation.'

Table 29. Average Sales Price of Coal by State and Underground Mining Method, 2016

(dollars per short ton)

Coal-Producing State	Continuous ¹	Conventional and Other ²	Longwall ³	Total
Alabama	w	-	w	94.42
Arkansas	w	-	-	w
Colorado	w	-	w	w
Illinois	33.53	w	44.35	w
Indiana	46.82	-	-	46.82
Kentucky Total	52.06	-	-	52.06
Kentucky (East)	58.40	-	-	58.40
Kentucky (West)	49.50	-	-	49.50
Maryland	w	-	-	w
Montana	-	-	w	w
New Mexico	-	-	w	w
Ohio	w	-	w	46.00
Oklahoma	w	-	-	w
Pennsylvania Total	61.11	-	43.70	46.18
Pennsylvania (Anthracite)	w	-	-	w
Pennsylvania (Bituminous)	w	-	43.70	w
Tennessee	w	-	-	w
Utah	40.29	-	w	w
Virginia	w	-	w	62.77
West Virginia Total	69.05	-	52.31	57.11
West Virginia (Northern)	69.44	-	w	w
West Virginia (Southern)	69.00	-	w	w
Wyoming	-	-	w	w
U.S. Total	51.98	w	47.55	w

1 Mines that produce greater than 50 percent of their coal by continuous mining methods.

2 Mines that produce greater than 50 percent of their coal by conventional mining methods or mines that produce coal using shortwall, scoop loading, hand loading, or other methods or a 50/50 percent continuous/conventional split in mining method.

3 Mines that have any production from longwall mining method. A typical longwall mining operation uses 80 percent longwall and 20 percent continuous mining.

- = No data reported.

w = Data withheld to avoid disclosure.

Note: An average sales price is calculated by dividing the total free on board (f.o.b) rail/barge value of the coal sold by the total coal sold. Excludes mines producing less than 25,000 short tons, which are not required to provide data. Excludes silt, culm, refuse bank, slurry dam, and dredge operations. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation.'

Table 30. Average Sales Price of Coal by State, County, and Number of Mines, 2016

Coal-Producing State and County	Number of Mines	Sales (thousand short tons)	Average Sales Price (dollars per short ton)
Alabama	22	9,410	91.86
Bibb	1	w	w
Franklin	1	w	w
Jefferson	7	5,671	86.16
Shelby	2	w	w
Tuscaloosa	2	w	w
Walker	8	2,947	100.43
Winston	1	w	w
Alaska	1	w	w
Denali	1	w	w
Arizona	1	w	w
Navajo	1	w	w
Arkansas	1	w	w
Sebastian	1	w	w
Colorado	8	13,673	42.54
Delta	1	w	w
Gunnison	1	w	w
La Plata	1	w	w
Moffat	2	w	w
Montrose	1	w	w
Rio Blanco	1	w	w
Routt	1	w	w
Illinois	20	45,209	39.20
Franklin	1	w	w
Gallatin	1	w	w
Hamilton	1	w	w
Macoupin	1	w	w
Perry	4	w	w
Randolph	3	w	w
Saline	4	6,298	39.08
Sangamon	1	w	w
Wabash	1	w	w
Washington	1	w	w
White	1	w	w
Williamson	1	w	w
Indiana	18	29,447	44.55
Clay	1	w	w
Daviess	1	w	w
Dubois	2	w	w
Gibson	3	w	w
Greene	1	w	w
Knox	3	w	w
Pike	3	w	w
Sullivan	1	w	w
Warrick	3	w	w
Kansas	1	w	w
Linn	1	w	w
Kentucky	105	43,489	50.79
Bell	9	1,191	52.71
Breathitt	1	w	w
Daviess	3	w	w
Floyd	6	854	57.10
Harlan	14	3,408	58.29
Hopkins	2	w	w
Johnson	3	w	w
Knott	3	w	w
Knox	3	w	w
Lawrence	1	w	w

Coal-Producing State and County	Number of Mines	Sales (thousand short tons)	Average Sales Price (dollars per short ton)
Leslie	5	995	48.29
Magoffin	1	w	w
Martin	2	w	w
Mclean	1	w	w
Muhlenberg	3	w	w
Ohio	4	4,954	41.03
Perry	13	3,660	51.87
Pike	25	3,924	56.71
Union	1	w	w
Webster	1	w	w
Whitley	4	151	121.96
Louisiana	2	w	w
De Soto	1	w	w
Natchitoches	1	w	w
Maryland	13	1,638	57.80
Allegany	9	1,012	42.47
Garrett	4	w	w
Mississippi	2	w	w
Choctaw	1	w	w
Kemper	1	w	-
Missouri	1	w	w
Bates	1	w	w
Montana	6	32,687	18.84
Big Horn	3	w	w
Musselshell	1	w	w
Richland	1	w	w
Rosebud	1	w	w
New Mexico	3	w	w
Mckinley	1	w	w
San Juan	2	w	w
North Dakota	5	27,589	17.95
Mclean	1	w	w
Mercer	3	w	w
Oliver	1	w	w
Ohio	16	12,577	44.68
Belmont	2	w	w
Harrison	4	2,073	46.99
Jackson	1	w	w
Jefferson	1	w	w
Monroe	1	w	w
Noble	1	w	w
Perry	2	w	w
Tuscarawas	3	w	w
Vinton	1	w	w
Oklahoma	3	w	w
Le Flore	2	w	w
Nowata	1	w	w
Pennsylvania	84	46,517	47.98
Armstrong	5	505	70.71
Beaver	1	w	w
Bedford	1	w	w
Butler	1	w	w
Cambria	5	683	46.31
Clearfield	12	1,100	71.34
Columbia	1	w	w
Dauphin	1	w	w
Greene	6	29,374	43.94
Indiana	9	1,435	64.65
Jefferson	4	315	66.55
Luzerne	6	376	109.05
Lycoming	1	w	w
Mercer	1	w	w

Coal-Producing State and County	Number of Mines	Sales (thousand short tons)	Average Sales Price (dollars per short ton)
Northumberland	6	141	73.61
Schuylkill	15	824	93.77
Somerset	6	1,301	69.25
Washington	2	w	w
Westmoreland	1	w	w
Tennessee	5	606	60.37
Claiborne	5	606	60.37
Texas	14	39,196	19.17
Atascosa	1	w	w
Freestone	1	w	w
Harrison	2	w	w
Hopkins	1	w	w
Lee	1	w	w
Leon	1	w	w
Limestone	1	w	w
Maverick	1	w	w
Panola	2	w	w
Robertson	1	w	w
Rusk	2	w	w
Utah	8	14,321	36.40
Carbon	3	w	w
Emery	2	w	w
Kane	2	w	w
Sevier	1	w	w
Virginia	39	12,025	60.96
Buchanan	19	7,723	64.64
Dickenson	9	2,446	49.05
Lee	1	w	w
Russell	1	w	w
Tazewell	1	w	w
Wise	8	1,359	65.54
West Virginia	96	81,807	56.20
Barbour	1	w	w
Boone	11	5,114	58.82
Fayette	5	2,415	61.53
Greenbrier	3	w	w
Kanawha	8	5,942	51.73
Logan	15	8,161	60.17
Marion	3	w	w
Marshall	2	w	w
Mcdowell	13	2,942	65.07
Mercer	1	w	w
Mingo	6	3,286	54.00
Monongalia	2	w	w
Nicholas	1	w	w
Ohio	1	w	w
Raleigh	10	4,986	75.24
Taylor	1	w	w
Tucker	1	w	w
Upshur	1	w	w
Webster	3	w	w
Wyoming	8	3,827	58.72
Wyoming	16	297,999	13.74
Campbell	11	257,683	12.42
Converse	1	w	w
Lincoln	1	w	w
Sweetwater	3	w	w
U.S. Total	490	736,804	30.57

-- No data reported.

w = Data withheld to avoid disclosure.

Note: An average sales price is calculated by dividing the total free on board (f.o.b) rail/barge value of the coal sold by the total coal sold. Excludes mines producing less than 25,000 short tons, which are not required to provide data. Excludes silt, culm, refuse bank, slurry dam, and dredge operations. Totals may not equal sum of components because of independent rounding.

Table 31. Average Sales Price of Coal by State and Coal Rank, 2016

(dollars per short ton)

Coal-Producing State	Bituminous	Subbituminous	Lignite	Anthracite	Total
Alabama	91.86	-	-	-	91.86
Alaska	-	w	-	-	w
Arizona	w	-	-	-	w
Arkansas	w	-	-	-	w
Colorado	w	w	-	-	42.54
Illinois	39.20	-	-	-	39.20
Indiana	44.55	-	-	-	44.55
Kansas	w	-	-	-	w
Kentucky Total	50.79	-	-	-	50.79
Kentucky (East)	55.44	-	-	-	55.44
Kentucky (West)	47.94	-	-	-	47.94
Louisiana	-	-	w	-	w
Maryland	57.80	-	-	-	57.80
Mississippi	-	-	w	-	w
Missouri	w	-	-	-	w
Montana	w	17.90	w	-	18.84
New Mexico	w	w	-	-	33.24
North Dakota	-	-	17.95	-	17.95
Ohio	44.68	-	-	-	44.68
Oklahoma	w	-	-	-	w
Pennsylvania Total	46.40	-	-	97.61	47.98
Pennsylvania (Anthracite)	-	-	-	97.61	97.61
Pennsylvania (Bituminous)	46.40	-	-	-	46.40
Tennessee	60.37	-	-	-	60.37
Texas	-	-	19.17	-	19.17
Utah	36.40	-	-	-	36.40
Virginia	60.96	-	-	-	60.96
West Virginia Total	56.20	-	-	-	56.20
West Virginia (Northern)	52.35	-	-	-	52.35
West Virginia (Southern)	60.71	-	-	-	60.71
Wyoming	w	w	-	-	13.74
U.S. Total	48.40	14.83	19.99	97.61	30.57

-- No data reported.

w = Data withheld to avoid disclosure.

Note: An average sales price is calculated by dividing the total free on board (f.o.b) rail/barge value of the coal sold by the total coal sold. Excludes mines producing less than 25,000 short tons, which are not required to provide data. Excludes silt, culm, refuse bank, slurry dam, and dredge operations. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation.'

Table 32. Average Sales Price of Coal by Mine Production Range and Mine Type, 2016

(dollars per short ton)

Mine Production Range (thousand short tons)	Underground	Surface	Total
Over 1,000	46.38	17.70	27.30
Over 500 to 1,000	61.80	45.25	55.94
Over 200 to 500	65.87	52.07	59.03
Over 100 to 200	60.26	56.77	57.92
Over 50 to 100	63.44	53.73	58.10
50 or Under	66.82	58.13	60.24
U.S. Total	49.02	20.47	30.57

Note: An average sales price is calculated by dividing the total free on board (f.o.b) rail/barge value of the coal sold by the total coal sold. Excludes mines producing less than 25,000 short tons, which are not required to provide data. Excludes silt, culm, refuse bank, slurry dam, and dredge operations. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation.'

Table 33. Average Sales Price of U.S. Coal by State and Disposition, 2016

(dollars per short ton)

Coal-Producing State	Open Market ¹	Captive ²	Total ³
Alabama	w	w	91.86
Alaska	w	-	w
Arizona	w	-	w
Arkansas	w	-	w
Colorado	35.69	51.13	42.54
Illinois	w	w	39.20
Indiana	45.79	43.14	44.55
Kansas	w	-	w
Kentucky Total	w	w	50.79
Kentucky (East)	w	w	55.44
Kentucky (West)	w	w	47.94
Louisiana	w	w	w
Maryland	52.96	-	57.80
Mississippi	w	-	w
Missouri	w	-	w
Montana	w	w	18.84
New Mexico	w	w	w
North Dakota	w	w	17.95
Ohio	47.11	41.72	44.68
Oklahoma	w	-	w
Pennsylvania Total	w	w	47.98
Pennsylvania (Anthracite)	w	w	97.61
Pennsylvania (Bituminous)	w	w	46.40
Tennessee	60.37	-	60.37
Texas	w	w	19.17
Utah	w	w	36.40
Virginia	w	w	60.96
West Virginia Total	55.29	48.13	56.20
West Virginia (Northern)	w	w	52.35
West Virginia (Southern)	w	w	60.71
Wyoming	w	w	13.74
U.S. Total	31.14	22.58	30.57

1 Open market includes coal sold on the open market to other coal companies or consumers; excludes exports.

2 Captive includes all coal used by the producing company or sold to affiliated or parent companies; excludes exports.

3 Total includes price of coal sold on the open market, captive market and exported by coal mines. Excludes price of coal exported by coal brokers, coal traders and coal terminals.

- = No data reported.

w = Data withheld to avoid disclosure.

Note: An average sales price is calculated by dividing the total free on board (f.o.b) rail/barge value of the coal sold by the total coal sold. Excludes mines producing less than 25,000 short tons, which are not required to provide data. Excludes silt, culm, refuse bank, slurry dam, and dredge operations. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration Form EIA-7A, 'Annual Survey of Coal Production and Preparation.'

Average Consumer Prices

Table 34. Average Price of Coal Delivered to End Use Sector by Census Division and State, 2016 and 2015

(dollars per short ton)

Census Division and State	2016				2015				Annual Percent Change			
	Electric Power ¹	Other Industrial	Commercial and Institutional	Coke	Electric Power ¹	Other Industrial	Commercial and Institutional	Coke	Electric Power ¹	Other Industrial	Commercial and Institutional	Coke
New England	69.01	w	-	-	79.72	w	-	-	-13.43	-9.73	-	-
Connecticut	w	-	-	-	w	-	-	-	-21.93	-	-	-
Maine	w	w	-	-	w	w	-	-	-16.81	-2.53	-	-
Massachusetts	w	w	-	-	w	w	-	-	-12.27	-28.60	-	-
New Hampshire	105.55	-	-	-	97.56	-	-	-	8.19	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-
Middle Atlantic	w	79.11	w	116.41	52.28	86.62	w	117.09	w	-8.67	-8.24	-0.58
New Jersey	w	-	-	-	w	-	-	-	-3.89	-	-	-
New York	w	96.38	w	-	w	106.02	w	-	3.14	-9.09	-6.58	-
Pennsylvania	w	73.03	w	116.41	50.76	78.86	w	117.09	w	-7.39	-8.36	-0.58
East North Central	42.43	69.15	104.00	75.68	43.73	72.12	125.16	83.21	-2.97	-4.12	-16.91	-9.05
Illinois	w	45.78	w	53.91	w	45.96	w	56.48	-7.28	s	-20.18	-4.55
Indiana	w	85.44	w	w	w	87.71	130.64	w	-1.87	-2.59	w	s
Michigan	w	77.91	w	-	w	83.60	w	w	-5.44	-6.81	-37.13	w
Ohio	w	84.33	102.85	w	w	87.17	118.44	115.19	-5.49	-3.26	-13.16	w
Wisconsin	39.58	77.95	-	154.08	40.26	88.00	-	128.25	-1.69	-11.42	-	20.14
West North Central	28.63	34.50	-	71.96	28.77	36.99	-	77.62	s	-6.73	-	-7.29
Iowa	28.00	43.24	-	w	28.32	45.98	-	w	-1.13	-5.96	-	-11.98
Kansas	29.26	w	-	-	29.22	w	-	-	s	1.17	-	-
Minnesota	36.50	51.13	-	w	33.64	54.98	-	w	8.50	-7.00	-	-25.51
Missouri	32.86	58.92	-	w	33.38	61.58	-	w	-1.56	-4.32	-	0.5
Nebraska	22.75	29.07	-	-	22.73	30.80	-	-	0.9	-5.62	-	-
North Dakota	20.58	w	-	w	20.71	w	-	56.11	-0.63	-4.45	-	w
South Dakota	37.32	w	-	-	36.72	w	-	-	1.63	-1.77	-	-
South Atlantic	64.55	90.31	w	100.45	68.92	92.17	w	109.10	-6.34	-2.02	-14.93	-7.93
Delaware	w	w	-	-	w	-	-	-	s	w	-	-
District of Columbia	-	-	-	w	-	-	-	w	-	-	-	-6.27
Florida	w	91.76	-	-	w	102.07	-	-	-3.53	-10.10	-	-
Georgia	56.58	97.77	-	-	58.56	103.49	-	-	-3.38	-5.53	-	-
Maryland	w	w	-	-	72.26	w	-	-	w	-0.81	-	-
North Carolina	w	97.40	-	w	86.30	102.16	-	w	w	-4.66	-	-10.62
South Carolina	79.86	93.60	-	-	88.48	99.81	-	-	-9.74	-6.22	-	-
Virginia	w	85.87	w	91.40	w	90.51	w	88.12	-2.66	-5.13	-14.43	3.72
West Virginia	w	122.00	w	-	w	99.33	w	-	-2.71	22.82	-15.08	-
East South Central	w	88.20	w	w	w	97.28	w	102.09	-6.38	-9.33	-13.01	w
Alabama	45.71	88.74	w	-	49.35	103.23	w	-	-7.38	-14.04	-13.01	-
Kentucky	46.73	90.75	-	w	49.01	94.83	-	w	-4.65	-4.30	-	-8.18
Mississippi	w	-	-	-	w	w	-	-	-16.57	w	-	-
Tennessee	48.02	86.83	-	-	52.01	95.23	-	w	-7.67	-8.82	-	w
West South Central	30.18	67.15	-	-	33.06	74.00	-	w	-8.71	-9.26	-	w
Arkansas	w	w	-	-	w	w	-	-	-4.38	-4.13	-	-
Louisiana	w	w	-	-	w	w	-	-	-1.84	-27.66	-	-
Oklahoma	w	w	-	-	w	w	-	-	-2.72	-4.20	-	-
Texas	27.50	81.81	-	-	30.55	85.55	-	w	-9.98	-4.37	-	w
Mountain	34.60	52.58	-	w	35.13	55.18	-	w	-1.51	-4.71	-	15.11
Arizona	41.48	w	-	-	39.61	w	-	-	4.72	-4.29	-	-
Colorado	34.78	69.78	-	w	34.62	63.93	-	w	s	9.15	-	-3.39
Idaho	-	w	-	-	-	70.39	-	-	-	w	-	-
Montana	w	40.60	-	w	w	38.57	-	w	9.04	5.26	-	39.73
Nevada	w	69.87	-	-	w	72.12	-	-	-5.39	-3.12	-	-
New Mexico	35.19	w	-	-	42.33	w	-	-	-16.87	7.84	-	-
Utah	42.19	50.01	-	-	42.37	52.85	-	-	s	-5.37	-	-
Wyoming	w	42.47	-	w	w	43.76	-	w	2.48	-2.95	-	8.78
Pacific	42.76	77.95	-	w	42.64	83.02	-	76.54	s	-6.11	-	w
Alaska	44.11	-	-	w	47.16	-	-	76.54	-6.47	-	-	w

Census Division and State	2016				2015				Annual Percent Change			
	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional	Electric Power ¹	Other Industrial	Coke	Commercial and Institutional
California	-	78.04	-	-	-	82.75	-	-	-	-5.69	-	-
Hawaii	w	-	-	-	w	w	-	-	-8.94	w	-	-
Oregon	38.90	w	-	-	41.12	w	-	-	-5.40	3.59	-	-
Washington	w	w	-	-	w	w	-	-	s	1.29	-	-
U.S. Total	40.39	60.34	102.00	81.11	42.58	65.44	118.69	85.70	-5.14	-7.79	-14.06	-5.36

¹ The electric power sector (electric utilities and independent power producers) comprises electricity-only and combined-heat-and-power(CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public (i.e. NAICS 22 plants).

- = No data reported.

w = Data withheld to avoid disclosure.

s = Value is less than 0.5 of the table metric, but value is included in any associated total.

Source: U.S. Energy Information Administration Form EIA-923, 'Power Plant Operations Report,' and Form EIA-3, 'Quarterly Survey of Non-Electric Sector Coal Data.' Prior to third quarter 2014, coke plant data was collected under Form EIA-5, 'Quarterly Coal Consumption and Quality Report - Coke Plants.'