2003-2004 GUIDE

Kentucky Coal Facts

Prepared by the

Kentucky Coal Council

and the

Kentucky Coal Association

Highlights

Electricity

Average electricity costs in Kentucky were 4.3 cents/kilowatt-hour in 2002, the lowest in the United States.

Production

Kentucky produced 131.4 million tons of coal in 2002, compared to the record production of 179.4 million tons set in 1990. Kentucky has been one of the top three coal producers in the United States for the last 50 years.

Employment

The Kentucky coal industry paid $742.3 million in direct wages in 2002, directly employing 15,584 persons and indirectly providing 3 additional jobs for every miner employed. The average weekly wage for coal miners in Kentucky was $916 during 2002.

Economy

The Kentucky coal industry brought over $2.5 billion into Kentucky from out-of-state during Fiscal Year 2000-01 through coal sales to customers in 27 other states and 11 foreign countries. Kentucky coal companies paid $141.5 million in coal severance taxes in Fiscal Year 2002.

Coal Markets

Electric power plants, located in 25 states, accounted for almost 67% of the Kentucky coal sold during 2002.

Approximately 72% of the coal produced in Kentucky is sold out-of-state each year.

There are 22 major coal-burning electric generating plants in Kentucky, and almost all (97%) of Kentucky's electricity is generated from coal.

Environment

All surface-mined land today is reclaimed equal to or better than it was prior to mining. Kentucky mining companies have received five national reclamation awards in 1999 thru 2001 for outstanding achievement in surface mining and received a total of 27 awards in the past 16 years.

Coal mining creates valuable lands such as wildlife habitats, gently rolling mountaintops, wetlands, and industrial sites where only steep, unproductive hillsides had once existed.

Kentucky operators have paid over $872.12 million into the Federal Abandoned Mine Land Fund since 1978 to reclaim abandoned coal mines. Nationwide, operators have paid over $6.56 billion into this fund. However, $1.44 billion remains unallocated for AML reclamation.

Coal Resources

Kentucky has two distinct coal fields, one in Western Kentucky and one in Eastern Kentucky. Kentucky's 88.5 billion tons of coal resources remaining represent 84% of the original resource.

Teacher Resources

Coal education resources materials are now available to teachers and students on the Internet at the web site www.coaleducation.org. Additionally, a coal education multimedia library kit with interactive learning tools is now available in every public elementary, middle school, and county library in Kentucky.

December 2003. This publication is for informational use only. It includes some extrapolative second and third party data as well as some broad estimates, and should not necessarily be construed as official source data or be construed as advocating or reflecting any policy position of the Kentucky Coal Council or the Kentucky Coal Association.

Table of Contents

Changes & Trends

Three centuries after it was discovered in America, coal is still providing power for the nation. As we begin a new century, coal faces many challenges to its premier status, but its importance can never be questioned. The fuel, coal, that enabled the United States to become the wealthiest industrialized nation in the world is still responsible for over half the nation's electrical power.

Coal provides 51.8% of the electricity in this country, and in Kentucky 97% of our electricity comes from coal.

Average electricity costs in Kentucky were 4.3 cents per kilowatt-hour during 2002, the lowest in the United States, 23% below the national average in 2000. **These low rates are largely due to our reliance on coal-fired generation,** sold at cost-based rates, as well as sound utility management and excellent public policy.

What Changes are Occurring?

Kentucky's share of the steam coal market to U.S. electric utilities declined from 23.2% of the market in 1973 to 9.5% in 2002. (see page 35)

As Kentucky coal companies consolidated into a globally competitive industry the number of mines decreased. The number of mines currently in Kentucky is down to almost one-fifth of the 2,063 mines which existed in 1984. (see page 8)

Post-mining land use changes are providing long term economic, social, and environmental benefits to Kentucky, and the benefits are increasing. (see pages 25 and 26)

Is there a Trend?

Kentucky ships over 2.2 times as much coal to its neighboring states as it receives from them, but Kentucky's positive coal flow ratio has been cut in half since 1990. (see page 21)

Natural gas costs to U.S. electric utilities in 1993, 1998, and again in 1999 increased higher than petroleum, while coal costs continued to decrease.

Underground mining in Kentucky continues to show steady safety improvements.

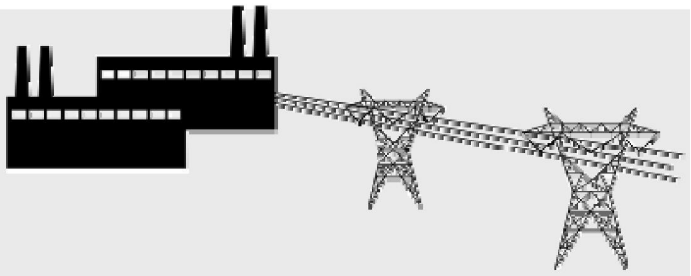
Over $2.5 billion continues to be brought into Kentucky each year from coal sales to 27 other states and 11 foreign countries. (see page 16)

The number of successful mining reclamation bond releases in Kentucky continues to grow each year. (see page 24)

Source: See individual reference pages as listed.

On the Horizon?

Kentucky permits two coal-fired power plants - the first in 20 years.



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Division of Abandoned Lands	Phone:	502/564-2141
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Mineral Valuation Section, 200 Fair Oaks Lane, 4th Fl., Frankfort, 40620	Fax:	502/564-5977
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United States Department of Energy		
National Energy Information Ctr., EI-30, Forrestal Bldg., IE-238	Phone:	202/586-8800
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History of Coal

1701 Coal discovered in Virginia.

1748 **First recorded U.S. coal production.**

1750 April 13th-Dr. Thomas Walker was the first recorded person to discover and use coal in Kentucky.

1755 Lewis Evan's map showing coal in what is now the Greenup County and Boyd County area of Kentucky.

1758 First commercial U.S. coal shipment.

1792 Issac Shelby becomes the first Governor of Kentucky (1792-1796).

1820 First commercial mine, known as the "McLean drift bank" opened in Kentucky, near the Green River and Paradise in Muhlenberg County.
328 short tons mined and sold in Kentucky.

1830 2,000 tons of Kentucky production.

1837 10,000 tons of Kentucky production.

1843 100,000 tons of Kentucky production.

1850 150,000 tons of Kentucky production.
Lexington and Big Sandy Railroad proposed.
Kentucky Geological Survey established.

1860 Pre-Civil War Kentucky production record of 285,760 tons.

1861 Kentucky-born Abraham Lincoln becomes the 16th President of the United States (1861-65).

1866 Surface mining begins near Danville, Illinois.

1870 Post-Civil War Kentucky production decline to 150,582 tons.
St. Louis & Southern Railroad completed from Henderson to Earlington, Kentucky.

1872 First train off the Big Sandy Railroad.

1877 Coal mined with steam-powered shovel.

1879 One million tons of Kentucky production.

1880 Mechanical stokers introduced.
First coke ovens in west Kentucky.
Mine Ventilation Law.
First train from Williamson, West Virginia to Pike County, Kentucky.
Coal mining machines come into general use.

1890 N&W Railroad's first mine at Goody in Pike County.
Hopkins County in west Kentucky leading coal producer in the state for 18 straight years.
Miner Pay Law.
United Mine Workers of America formed.
Machines developed to undercut coalbeds.
5,000 kilowatt steam turbine generates electricity.

1900 Child Labor Law.
Edgewater Coal Company's first production in Pike County.
First train off the Lexington and Eastern Railroad.
Independent Geological Survey established.

1910 First train from the Cumberland Valley Railroad.
Fordson Coal Company's first production at Pond Creek.
Pike-Floyd Coal Company's first production at Betsy Layne.

1914 World War I increases demand for coal; Kentucky production 20.3 million tons.
Short-flame or "permissible" explosives developed.
Mine Safety Law.

1918 First pulverized coal firing in electric power plants.

1920 Federal Mineral Leasing Act.
42.1 million tons of Kentucky production.

1923 All-time high U.S. employment of 704,793 bituminous coal and lignite miners.
First dragline excavators built especially for surface mining.

1929 Stock market crashes beginning the Great Depression.

1932 Walking dragline excavators developed.

1936 47.7 million tons of Kentucky production.

1940 World War II - coal production in Kentucky rises to 72.4 million tons for the war effort.
Auger surface mining introduced.

1942 Republic Steel Company's first production - Road Creek, Kentucky.
Post-War Marshall Plan - production rises to 88.7 million tons in Kentucky.

History of Coal

1942 Continuous underground mining systems developed.
Kentucky Water Contamination Legislation.

1947 Kentucky Coal Association founded.

1950 82.2 million tons of Kentucky production.

1956 Fish and Wildlife Coordination Act.
Railroads converting from coal to diesel fuel.
Roof bolting introduced in underground mines.

1960 Railroads began using unit coal trains.
First longwall mining with powered roof supports.
Kentucky Surface Mining Legislation.

1963 Kentucky coal production exceeded 100 million tons.

1966 National Historic Preservation Act.
C&O Railroad to John's Creek constructed - Pike County.

1969 Federal Coal Mine Health and Safety Act.

1970 Federal Clean Air Act.

1972 Kentucky Coal Severance Tax established.
Federal Water Pollution Control Act.
Kentucky becomes the leading coal production state.

1973 Endangered Species Act.
OPEC oil embargo: Coal production and prices rise.

1976 Federal Coal Leasing Amendments Act.

1977 Federal Surface Mine Control and Reclamation Act.

1980 Congress enacts the National Acid Precipitation Assessment Program (NAPAP) Study, a 10 year research program, which invested $550 million for the study of "acid rain." Industries spend over $1 billion on Air Pollution Control Equipment during 1980.

1983 OPEC cuts oil prices for first time.
Martha Layne Collins becomes Kentucky's first woman Governor (1983-87).
U.S. Clean Coal Technology Demonstration Program established $2.5 billion in Federal matching funds committed to assist the private sector to develop and demonstrate improved clean coal technologies.

1988 Kentucky Supreme Court rules that the unmined minerals tax on coal is subject to the same state and local property tax rates as other real estate.
TVA 160-MW Atmospheric Fluidized Bed Combustion Unit on line.
Wyoming displaces Kentucky as the leading coal producing state.

1990 Federal Clean Air Act Amendments of 1990.
Kentucky record production - 179.4 million tons.
U.S. coal production exceeds 1 billion tons.

1992 U.S. Energy Policy Act of 1992.

1993 CEDAR, Inc. (Coal Education Development and Resources) formed in Pike County.

1994 Western Kentucky CEDAR, Inc. was formed in Webster and Union Counties.

1996 Federal Energy Regulatory Commission (FERC) issues Order 888, addressing the issues of open access to encourage wholesale competition in the electric utility industry and FERC Order 889, requiring utilities to share information about available transmission capacity.
Kentucky Coal Education (www.coaleducation.org) was introduced to the Internet.
Workers' Comp Reform Laws are passed in Kentucky.

1997 The Kentucky Fish and Wildlife Commission voted to re-introduce Elk into 14 East Kentucky counties on post-mined lands, citing mountain-top removal areas and old mine benches as good elk habitat. This will be the only large free-ranging elk herd in the Eastern United States.

1997 **Kentucky Coal Association celebrates 50 years of service to the mining industry.**

1998 Mountaintop mining comes under attack.
Federal synthetic fuel tax credit for use of coal fines begins.

2001 Natural gas prices increase over 50% in one year.
Electricity shortages result in rolling blackouts in California.
Kentucky permits two coal-fired electric power plants, first in 20 years.
September 11, 2001 - America is attacked.
AMERICA'S SECURE FUEL FOR ELECTRIC ENERGY -- COAL

Sources: Energy Information Administration, Coal Data: A Reference, 1989, Kentucky Division of Mines and Minerals, Annual Reports, and Willard Rouse Jillson, Coal Industry in Kentucky, 1922.

Types of Mining

Kentucky has two distinct coal fields, each containing numerous deposits of bituminous coal of various characteristics and mines of every type and size. By the use of large draglines and shovels, the excavation of two or more coal seam deposits (multi-seam mining) is possible in the large area surface mines of the gently rolling **Western Kentucky** coal field and in the large mountain top mines in the steeper terrain of the **Eastern Kentucky** coal field. Both the eastern and western Kentucky coal fields have large, modern, and efficient underground mines (of various entry types) utilizing improved mining methods with increased mechanization including continuous miners, longwall mining panels, or both.

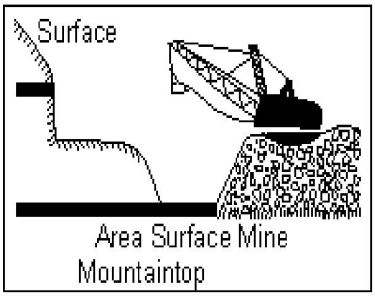
Of Kentucky's 124.1* million tons of 2002 coal production, 75.6 million tons were produced by underground mining methods and 48.5 million tons were produced by surface mining methods.

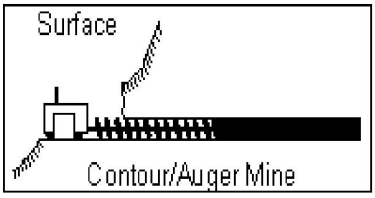
***NOTE:** This is the official U.S. DOE number for Kentucky. State and Federal numbers will differ.

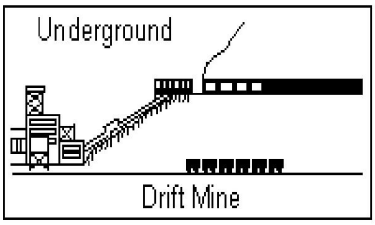
The EKY and WKY breakdown for the number of mines and production for both surface and underground mining methods used in Kentucky is as follows:

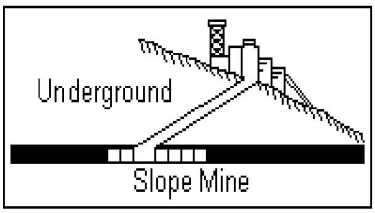
2002 Production by Mine Type

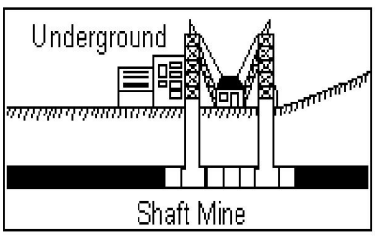
Mine Type	No. of Mines	Production (million tons)
Surface	**194**	**48.5**
E KY	180	43.0
W KY	14	5.5
Underground	**233**	**75.6**
E KY	219	56.4
W KY	14	19.2
State Totals	**427**	**124.1**











Source: U.S. DOE - EIA Coal Data: A Reference, 1989.

U.S. Coal Production

KY and U.S. Coal Production* 1970—2002 (millions of tons)

Year	Kentucky Eastern	Kentucky Western	Kentucky Total	United States	Kentucky as % of U.S.
1970	72.5	52.8	125.3	602.9	20.8
1971	71.6	47.8	119.4	552.2	21.6
1972	68.9	52.3	121.2	595.4	20.4
1973	74.0	53.7	127.6	591.7	21.6
1974	85.4	51.8	137.2	603.4	22.7
1975	87.3	56.4	143.6	648.4	22.1
1976	91.1	52.8	144.0	678.7	21.2
1977	94.0	52.3	146.3	691.3	21.2
1978	96.2	39.5	135.7	665.1	20.4
1979	104.1	42.5	146.5	777.9	18.8
1980	109.2	41.0	150.1	829.7	18.1
1981	117.9	39.7	157.6	823.8	19.1
1982	111.2	39.0	150.2	838.1	17.9
1983	95.6	35.6	131.2	782.1	16.8
1984	117.3	42.3	159.5	895.9	17.8
1985	113.3	39.0	152.3	883.6	17.2
1986	112.7	41.2	153.9	890.3	17.3
1987	119.9	45.3	165.2	918.8	18.0
1988	117.5	40.3	157.9	950.3	16.6
1989	125.7	41.6	167.4	980.7	17.1
1990	128.4	44.9	173.3	1,029.1	16.8
1991	117.2	41.8	159.0	996.0	16.0
1992	119.4	41.7	161.1	997.5	16.2
1993	120.2	36.1	156.3	945.4	16.5
1994	124.4	37.2	161.6	1,033.5	15.6
1995	118.5	35.2	153.7	1,033.0	14.9
1996	117.0	35.5	152.4	1,063.9	14.3
1997	120.9	34.9	155.9	1,089.9	14.3
1998	116.7	33.6	150.3	1,118.1	13.4
1999	110.0	29.6	139.6	1,100.4	12.7
2000	105.0	25.8	130.7	1,073.6	12.2
2001	109.1	24.7	133.8	1,125.9	11.9
2002	99.4	24.7	124.1	1,094.3**	11.3

* NOTE: This is the official U.S. DOE number for Kentucky. State and Federal numbers will differ.
** US Total includes 988,000 tons of Refuse Recovered.

U. S. Leading Coal Producers

Kentucky ranked third in the United States in coal production during 2002.

2002 Rank	State	Millions of Tons
1	Wyoming	373.2
2	West Virginia	150.1
3	**Kentucky**	**124.1**
4	Pennsylvania	68.4
5	Texas	45.2
6	Montana	37.4
7	Indiana	35.3
8	Colorado	35.1
9	Illinois	33.3
10	North Dakota	30.8

Sources: U.S. DOE - Energy Information Administration; Coal Industry Annual, 1993-2002, Coal Production, 1977-1992. U. S. Bureau of Mines, Mineral Yearbook, 1970-1976.

Kentucky Production

Kentucky produced 131.4 million tons of bituminous coal in 2002, down from the record of 179.4 million tons set in 1990.

	UNDERGROUND		SURFACE		STATE
Year	Eastern Kentucky	Western Kentucky	Eastern Kentucky	Western Kentucky	TOTALS
1960	32,041,487	12,851,108	4,622,417	18,552,641	67,067,653
1965	37,740,473	13,341,646	9,587,626	26,537,294	87,207,039
1970	44,068,538	19,430,489	28,527,422	33,281,946	125,308,395
1975	41,280,096	24,757,456	46,957,448	31,209,511	144,204,511
1980	59,603,430	19,558,157	49,582,095	21,400,291	150,143,973
1985	75,530,607	21,188,598	52,294,115	22,602,743	169,616,063
1990	81,577,417	27,375,465	49,393,390	21,026,997	179,373,269
1995	73,922,358	24,763,534	47,288,817	11,812,973	157,787,682
2000	59,956,626	21,543,143	44,335,363	6,010,856	131,845,988
2002	59,562,704	21,244,764	44,615,777	5,979,552	131,402,797

Source: Kentucky Division of Mines & Minerals, Annual Reports, 1960—2002

Number of Mines, 1984-2002

	Kentucky			Eastern Kentucky			Western Kentucky		
Year	Surface	Under-ground	Total	Surface	Under-ground	Total	Surface	Under-ground	Total
1984	1,137	926	2,063	1,026	900	1,926	111	26	137
1985	937	921	1,858	836	897	1,733	101	24	125
1986	723	830	1,553	633	802	1,435	90	28	118
1987	612	816	1,428	532	791	1,323	80	25	105
1988	492	738	1,230	426	714	1,140	66	24	90
1989	429	670	1,099	358	644	1,002	71	26	97
1990	360	627	987	301	601	902	59	26	85
1991	296	542	838	243	513	756	53	29	82
1992	270	482	752	225	459	684	45	23	68
1993	250	446	696	197	425	622	53	21	74
1994	248	425	673	206	401	607	42	24	66
1995	237	361	598	201	339	540	36	22	58
1996	237	307	544	197	287	484	40	20	60
1997	221	308	529	193	289	482	28	19	47
1998	205	277	482	186	259	445	19	18	37
1999	198	260	458	178	243	421	20	17	37
2000	162	246	408	148	234	382	14	12	26
2001	203	264	467	187	253	440	16	11	27
2002	194	233	427	180	219	399	14	14	28

Number of Mine Licenses in Kentucky

The number of actual mines is smaller than the final number of mine licenses issued each year. A new license is required when the company name or ownership changes.

	UNDERGROUND		SURFACE		STATE
Year	Eastern Kentucky	Western Kentucky	Eastern Kentucky	Western Kentucky	TOTALS
1960	2,563	74	179	70	2,886
1965	1,959	49	176	45	2,229
1970	1,449	34	502	73	2,058
1975	1,614	31	1,743	182	3,570
1980	1,131	32	1,349	136	2,648
1985	1,153	31	1,548	139	2,871
1990	799	27	860	83	1,769
1995	456	28	665	48	1,197
2000	309	14	256	26	605
2002	300	18	310	20	648

Source: Kentucky Division of Mines & Minerals, Annual Reports, 1960—2002

County Production

There were 427 mines in Kentucky during 2002. These mines were issued 648 mine licenses and produced 131.4 million tons.

233 underground mines (318 licenses) accounted for 61.5% of Kentucky's production and 194 surface mines (330 licenses) accounted for 38.5% of Kentucky's production.

78% of Western Kentucky and 57% of Eastern Kentucky's coal production was from underground mines during 2002.

In 2002, 32 Kentucky counties produced coal; nine Western Kentucky counties and 23 Eastern Kentucky counties.

2002 Production by County and Type of Mine License*

	Underground		Surface		Total	
County	Licenses	Tonnage	Licenses	Tonnage	Licenses	Tonnage
EASTERN KENTUCKY						
Bell	15	1,833,896	9	1,288,080	24	3,121,976
Breathitt	-	-	3	1,263,410	3	1,263,410
Carter	-	-	1	0	1	0
Clay	1	124,997	11	97,369	12	222,366
Elliott	-	-	2	15,000	2	15,000
Floyd	32	1,985,481	15	1,009,658	47	2,995,139
Greenup	-	-	1	8,999	1	8,999
Harlan	46	8,402,364	18	2,183,703	64	10,586,067
Jackson	-	-	4	22,574	4	22,574
Johnson	3	393,352	8	383,516	11	776,868
Knott	30	5,542,972	28	6,077,266	58	11,620,238
Knox	12	282,290	5	187,254	17	469,544
Laurel	-	-	2	34,113	2	34,113
Lawrence	3	605,089	7	926,096	10	1,531,185
Lee	-	-	1	48,860	1	48,860
Leslie	9	4,131,927	7	2,601,132	16	6,733,059
Letcher	34	7,499,513	22	2,746,074	56	10,245,587
Magoffin	-	-	1	31,803	1	31,803
Martin	12	4,389,981	15	4,502,391	27	8,892,372
Morgan	1	1,150	3	10,163	4	11,313
Owsley	-	-	5	40,793	5	40,793
Perry	10	4,334,294	27	8,614,924	37	12,949,218
Pike	89	19,968,304	110	12,447,007	199	32,415,311
Whitley	3	67,094	5	75,592	8	142,686
EKY Total	300	59,562,704	310	44,615,777	610	104,178,481
WESTERN KENTUCKY						
Christian	-	-	1	116,595	1	116,595
Daviess	-	-	2	347,379	2	347,379
Henderson	1	1,976,206	1	1,117,780	2	3,093,986
Hopkins	5	2,843,056	5	2,047,376	10	4,890,432
McLean	-	-	1	277,586	1	277,586
Muhlenberg	3	3,256,886	8	2,055,296	11	5,312,182
Ohio	1	344,686	2	17,540	3	362,226
Union	4	3,790,906	-	-	4	3,790,906
Webster	4	9,033,024	-	-	4	9,033,024
WKY Total	18	21,244,764	20	5,979,552	38	27,224,316
KY Totals	**318**	**80,807,468**	**330**	**50,595,329**	**648**	**131,402,797**

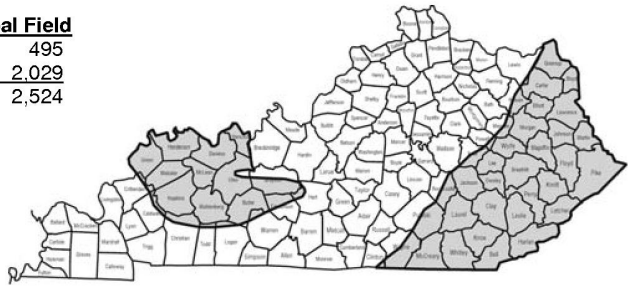
***NOTE:** The number of licenses is greater than the number of mines because a mine may be relicensed if the company changes name or ownership.
Source: Kentucky Division of Mines and Minerals, Annual Report, 2002

Employment

The Kentucky coal mining industry has a current work force of approximately 17,042* people directly employed in coal mining jobs. The Western Kentucky coal field directly employs approximately 2,524 persons; the Eastern Kentucky coal field, approximately 14,518 direct mining jobs.

Kentucky's Coal Mining Work Force, 2002

Western Kentucky Coal Field	
Surface	495
Underground	2,029
Total	2,524



Eastern Kentucky Coal Field	
Surface	5,237
Underground	9,281
Total	14,518

In 2002, Kentucky produced 124,142 million tons. Eastern Kentucky averaged just over 85% of Kentucky's coal mining work force and accounted for about 80% of Kentucky's total coal production. Western Kentucky averaged approximately 15% of Kentucky's coal mining work force and about 20% of Kentucky's total coal production.

Direct mining employment declined in Eastern Kentucky, but increased in the Western Kentucky coalfields.

Kentucky Coal Mining Employment, 1979—2002

	Western Kentucky			Eastern Kentucky			Kentucky
Year	Surface	Underground	Total	Surface	Underground	Total	Totals
1979	4,343	6,945	11,288	12,838	23,064	35,902	47,190
1980	3,995	7,879	11,874	11,819	22,702	34,521	46,395
1981	4,056	6,489	10,545	13,473	24,032	37,505	48,050
1982	4,120	5,639	9,759	12,319	22,782	35,101	44,860
1983	3,415	4,918	8,333	10,485	17,615	28,100	36,433
1984	4,022	4,053	8,075	11,327	18,474	29,801	37,876
1985	3,421	4,294	7,715	10,516	18,583	29,099	36,814
1986	2,327	4,297	6,624	8,718	17,312	26,030	32,654
1987	2,345	4,605	6,950	8,740	16,900	25,640	32,590
1988	1,825	4,388	6,213	8,261	16,085	24,346	30,599
1989	1,870	4,166	6,036	8,034	16,586	24,620	30,656
1990	2,095	3,491	5,586	7,505	17,407	24,912	30,498
1991	1,910	3,603	5,513	6,251	14,878	21,129	26,642
1992	1,722	3,483	5,205	6,014	13,405	19,419	24,624
1993	1,887	3,465	5,352	5,683	13,028	18,711	24,063
1994	1,803	2,988	4,791	5,728	12,849	18,577	23,368
1995	1,109	3,176	4,285	5,474	11,366	16,840	21,125
1996	1,095	2,601	3,696	4,855	10,275	15,130	18,826
1997	937	2,578	3,515	5,053	10,369	15,422	18,937
1998	747	2,763	3,510	5,493	9,924	15,417	18,927
1999	615	2,309	2,924	4,973	9,314	14,287	17,211
2000	450	2,060	2,510	4,162	8,828	12,990	15,500
2001	558	1,864	2,422	5,197	9,915	15,112	17,534
2002	495	2,029	2,524	5,237	9,281	14,518	17,042

***Note:** State employment numbers differ from federal EIA numbers.
Source: U.S.DOE—EIA; Coal Industry Annual, 1993-2002, Coal Production 1979-1992.

Employment / Productivity

Kentucky Coal Mine Employment

Average Kentucky coal mine productivity increases in tons per miner per hour during the time period shown below have allowed for the decline in coal mine employment in both Eastern and Western Kentucky.

Mine Productivity, 1977-2002 (tons/miner/hour)

Year	Eastern Kentucky	Western Kentucky	Kentucky Average	Appalachian Coal Field	Interior Coal Field	Western U.S. Coal Field	U.S. Average
1977	1.71	2.22	1.86	1.36	2.42	5.85	1.82
1978	1.62	1.97	1.71	-	-	-	1.79
1979	1.54	1.94	1.64	1.33	2.21	5.47	1.81
1980	1.67	1.96	1.74	1.39	2.30	5.64	1.93
1981	1.76	2.12	1.84	1.51	2.35	6.15	2.10
1982	1.79	2.01	1.84	1.51	2.38	6.26	2.11
1983	1.98	2.43	2.08	1.75	2.69	7.60	2.50
1984	2.13	2.61	2.24	1.86	2.80	8.30	2.64
1985	2.13	2.57	2.23	1.90	2.81	8.55	2.74
1986	2.31	2.94	2.45	2.09	3.14	9.27	3.01
1987	2.59	2.98	2.69	2.30	3.33	10.42	3.30
1988	2.68	2.95	2.74	2.44	3.45	11.01	3.55
1989	2.58	3.62	2.78	2.49	3.84	11.63	3.70
1990	2.66	3.46	2.83	2.60	3.88	11.82	3.83
1991	2.90	3.37	3.01	2.74	3.98	12.42	4.09
1992	3.10	3.49	3.20	2.95	4.18	12.73	4.36
1993	3.18	3.49	3.25	3.00	4.43	13.53	4.70
1994	3.24	3.28	3.25	3.20	4.43	14.58	4.98
1995	3.47	3.97	3.57	3.32	4.97	15.68	5.38
1996	3.68	4.29	3.80	3.48	5.39	17.41	5.69
1997	3.83	4.38	3.94	3.76	5.54	17.75	6.04
1998	3.70	4.16	3.79	3.78	5.39	18.03	6.20
1999	3.74	4.57	3.89	3.84	5.64	19.05	6.61
2000	3.86	4.46	3.96	4.10	5.81	19.63	7.02
2001	3.52	4.43	3.66	3.85	5.56	20.64	6.82

Western Kentucky Coal Mine Productivity, 1977-2002

Western Kentucky Coal Mine Productivity was down in 2000, 2001 and 2002 from the 4.57 tons per miner per hour record of 1999. Western Kentucky's production has also fallen to less than half the total tons produced 25 years ago.

Eastern Kentucky Coal Mine Productivity, 1977-2002

Eastern Kentucky Coal Mine Productivity was down also in 2001 and 2002 from the 3.86 tons per miner per hour record of 2000. Coal prices, mining conditions and mining safety and environmental requirements might have been factors in the decline.

Source: U.S. Department of Energy—EIA: Coal Industry Annual, 1993-2002, Coal Production: 1977-1992.

Employment / Wages by County

Coal County Employment and Wages, 2002

County[1]	Direct Mining Employment	% of Labor Force	Miners as % of Total Employed	Mining Wages	% of Total County Wages	Average Weekly Mining Earnings[3]
Eastern Kentucky						
Bell	780	7.9	8.6	$29,518,512	13.3	$727.77
Boyd	188	0.9	0.9	$9,543,311	1.1	$976.20
Breathitt	60	1.5	1.6	$3,996,384	5.2	$1,280.89
Clay	47	0.6	0.6	$1,269,107	1.4	$519.27
Floyd	511	3.7	4.0	$16,872,124	5.5	$634.96
Harlan	1,310	14.3	15.9	$57,780,159	26.5	$848.21
Johnson	207	2.2	2.3	$9,570,292	6.3	$889.10
Knott	1,020	17.2	18.2	$50,795,396	47.4	$957.68
Knox	89	0.8	0.8	$2,394,021	1.3	$517.29
Laurel	139	0.6	0.6	$4,673,696	0.8	$646.61
Lawrence	84	1.6	1.7	$3,688,648	4.6	$844.47
Leslie	711	16.5	17.8	$37,074,689	47.9	$1,002.78
Letcher	908	11.2	12.4	$42,692,452	24.7	$904.19
Martin	785	22.3	24.0	$41,275,542	38.5	$1,011.16
Perry	1,442	12.4	13.3	$69,842,396	20.2	$931.43
Pike	4,182	15.6	16.5	$190,418,562	27.9	$875.63
Whitley	57	0.4	0.4	$2,136,942	0.8	$720.97
Subtotal	12,520			$573,542,233		$880.96
EKY Total[2]	**12,735**			**$583,023,882**		**$880.41**

Non Coal Field Counties

Note: The direct mining employment classification does not include most of the administrative/professional employees of coal companies located in these Kentucky metropolitan areas and does not include any private services or indirect employment.

Western Kentucky						
Daviess	29	0.1	0.1	$1,880,479	0.2	$1,247.00
Henderson	254	1.0	1.1	$14,657,076	2.3	$1,109.71
Hopkins	602	3.1	3.3	$31,423,671	6.7	$1,003.82
Muhlenberg	320	2.5	2.7	$21,091,061	9.3	$1,267.49
Union	608	10.0	10.6	$36,108,086	23.1	$1,142.08
Webster	740	13.4	14.3	$42,672,908	37.4	$1,108.96
Subtotal	2,553			$147,833,281		$1,113.57
WKY Total[2]	**2,668**			**$152,018,864**		**$1,095.74**
State Total[2]	**15,584**			**$742,269,974**		**$915.97**

1 Counties with less than three employers or one employer with 80% of the total county miner workforce were withheld to avoid disclosure of individual company data. These counties are as follows: Butler, Christian, Elliott, McCreary, McLean, Magoffin, Morgan, Ohio, Owsley, Pulaski, Warren and Wolfe. Multi-county mining employment may cause some counties to be under reported and others to be over reported.

2 Columns do not add to the EKY & WKY totals due to withheld data and do not equal state totals due to county of employment being reported outside of coal field.

3 Variation in average weekly mining income affected greatly by hours worked per week as well as hourly wage rate.

Values and methodologies used in this table may not be consistent with LGEDF regulations (page 15). Do not use these values for LGEDF estimates.

Source: Developed by the Kentucky Coal Council from the Kentucky Workforce Development Cabinet's Employment and Wages Section Data.

Safety and Training

Safety and health standards are highly regulated by the federal Mine Safety and Health Administration (MSHA) and the Kentucky Division of Mines and Minerals (KDMM).

All surface and underground mines are inspected regularly. Larger mines may have inspectors at the mine site every day.

Training for Surface Miners

New miners must have 24 hours of training and pass a written exam before being eligible for employment at a surface mine. Workers at prep plants, rail sidings, and river terminals must also meet those training requirements. The inexperienced miner must work a minimum of 45 days at a surface mine before becoming a certified experienced miner. After the initial training, each surface mine employee is required to receive eight hours of annual retraining.

To obtain a Surface Mine Foreman Certification, a miner must have three years of surface mining experience achieved after age 18. To obtain certification, a surface mine foreman must specialize in either coal extraction or post mining activities (coal preparation or coal handling). The applicant must have at least one year of practical experience in the specialty category.

To become a blaster in a surface coal mine, the applicant must attend 30 hours of training and pass both a licensing and certification test. Two years of additional work experience under a licensed blaster is required.

Training for Underground Miners

New miners are required to have a minimum of 40 hours of training plus pass a written exam prior to starting work as an inexperienced miner.

An inexperienced miner must work a minimum of 45 days in an underground mine before becoming a certified experienced miner.

A minimum of 16 hours of annual retraining is required to maintain the miner certification and continue to work at an underground mine.

A newly hired miner (experienced or inexperienced) also must receive up to eight hours of mine site-specific training.

To receive an Underground Mine Foreman Certification, a miner must have five years of practical underground coal mining experience gained after age 18, with at least one year on an active working section of a coal mine. An Assistant Mine Foreman Certification requires three years practical experience.

Each miner receives new work assignment training (Task Training) to become certified for each new job classification.

To maintain their certification, and qualifications, certified electrical workers must satisfactorily complete annual electrical retraining classes.

Underground Miner Classifications

Experience Required	Underground Mining Position
5 yrs	Electrical Inspector* Mine Inspector/Mine Safety Analyst* Mine Foreman* Electrical Instructor*
3 yrs	Asst. Mine Foreman* Instructor
1 yr.	Electrical Worker* Hoisting Engineer*
45 days	Shot Firer* Certified Miners
SPECIAL TRAINING	
MET EMT	Mine Emergency Technician or Emergency Medical Technician First Aid

*Tests are required in addition to years of experience.

NOTE: Over 20,000 persons are trained or retrained annually for one or more surface and/or underground miner classification by the KDMM to maintain the current Kentucky miner workforce of over 15,000 miners.

Source: Kentucky Division of Mines and Miners (KDMM).

Only certified shot-firers can detonate explosives within a mine.

MET/EMT - A Mine Emergency Technician (MET) or Emergency Medical Technician (EMT) is required at every coal mine on every shift with a work force of 50 or fewer employees. An additional MET or EMT must be employed for each additional 50 employees, or any portion thereof.

METs are certified through training and examination administered by KDMM under regulations established by the KDMM. The MET certification requires 40 hours of initial training, a current CPR certification and eight hours of annual retraining.

All certifications and mining specialties, as established by the Kentucky Mining Board, must be signed by the Director (KDMM) verifying the holder has completed the requirements for certification.

Severance Tax by County

Coal Severance Tax Revenue by County, FY 2002-2003

County	Gross Value of Severed Coal	Tax on Severed Coal	Gross Value of Processing	Total Tax Receipts
Eastern Kentucky (Elliott, Greenup, Lee, Morgan, and Pulaski County data withheld)				
Bell	$ 85,172,600	$ 3,793,572	$ 13,004,196	$ 4,414,843
Boyd	709,719	31,937	5,212,961	269,415
Breathitt	34,018,209	1,228,196	459,221	1,250,057
Clay	7,720,949	308,972	1,482,703	362,892
Floyd	87,133,866	3,789,958	4,685,984	3,994,261
Harlan	255,715,512	11,497,770	11,256,571	12,024,444
Jackson	583,971	26,279	-	26,279
Johnson	16,926,563	761,696	2,346,803	867,303
Knott	278,760,063	12,295,994	17,513,323	13,156,757
Knox	16,125,557	721,351	3,199,574	860,051
Laurel	972,343	43,444	1,950,453	131,214
Lawrence	26,188,740	1,224,495	2,815,607	1,351,208
Leslie	129,087,420	5,810,747	19,042,562	6,669,475
Letcher	251,010,969	10,253,622	27,518,066	11,268,585
Magoffin	17,155,789	772,012	246,405	783,095
Martin	155,881,929	6,956,284	27,915,765	8,223,374
Owsley	1,566,131	70,481	213,279	79,930
Perry	255,870,326	11,509,372	39,392,890	13,287,261
Pike	766,110,260	34,112,484	120,971,083	39,568,774
Whitley	2,560,663	103,358	821,464	142,940
Eastern KY Total *	**$ 2,390,638,851**	**$ 105,361,781**	**$ 300,451,561**	**$ 118,783,697**
Western Kentucky (Christian, Daviess, Henderson, McLean and Ohio County data withheld)				
Hopkins	$ 183,400,691	$ 8,250,446	$ 14,581,874	$ 8,904,011
Muhlenberg	79,527,158	3,578,740	1,497,069	$ 3,646,108
Union	51,399,952	2,312,999	7,540,256	$ 2,652,311
Webster	68,356,552	3,073,071	25,847,280	$ 4,233,224
Western KY Total *	**$ 447,875,893**	**$ 20,168,363**	**$ 56,496,589**	**$ 22,705,116**
State Totals *	**$ 2,838,514,744**	**$ 125,530,144**	**$ 356,948,150**	**$ 141,488,813**

* Columns do not add to State Totals because of Christian, Daviess, Elliott, Henderson, Greenup, Jefferson, Lee, McLean, Morgan, Ohio, and Pulaski Counties' information being withheld to avoid disclosure of individual company data.

Source: Kentucky Revenue Cabinet

Coal Taxes Returned

Coal Severance Taxes Returned to Counties, FY 1992 - 2003

Fiscal Year	Local Govt. Economic Assistance Fund (LGEAF)*		Local Govt. Economic Development Fund (LGEDF)**		Total % Returned
1991-92	$ 22,120,783	12%	$ 0		12%
1992-93	21,559,445	12%	5,389,862	3%	15%
1993-94	21,537,099	12%	10,768,550	6%	18%
1994-95	21,359,598	12%	15,218,716	9%	21%
1995-96	19,805,628	12%	20,383,293	13%	25%
1996-97	19,574,470	12%	24,806,340	16%	28%
1997-98	18,674,360	13%	24,260,750	18%	31%
1998-99	18,615,839	14%	25,627,772	21%	35%
1999-00	17,373,579	14%	27,081,883	24%	38%
2000-01	15,279,384	13%	29,105,903	27%	40%
2001-02	19,387,021	14%	37,017,575	30%	44%
2002-03	15,673,933	14.5%	35,041,129	32.5%	47%

* Established by the General Assembly; however, this column only includes fiscal years 1992 thru 2003 and includes coal severance taxes only.

** Does not include interest.

Coal Taxes Returned to Coal Producing Counties

Producing Counties	LGEAF* (FY03)	LGEDF** (FY03)	Unmined Minerals Tax - FY 02 County Estimate**** Average 84.50%	Total Tax Billed
Eastern KY				
Bell	$ 500,469	$ 832,407	$ 144,421	$ 172,475
Boyd	45,925	127,989	2,384	2,790
Breathitt	220,807	549,002	224,304	265,934
Carter	0	142,404	336	412
Clay	174,619	217,237	15,903	19,310
Elliott	22,455	128,860	351	409
Floyd	621,269	854,652	432,360	494,865
Greenup	29,455	92,411	0	0
Harlan	1,143,414	1,670,478	1,192,065	1,387,017
Jackson	101,476	46,298	224	263
Johnson	252,536	266,234	17,801	21,265
Knott	1,134,575	2,195,542	753,691	931,139
Knox	217,864	271,425	16,840	20,396
Laurel	191,005	100,978	277	346
Lawrence	468,518	280,424	28,628	34,203
Lee	88,479	269,151	0	0
Leslie	653,832	1,866,275	622,683	719,880
Letcher	1,013,282	1,580,335	874,422	1,034,767
McCreary	0	114,144	15,015	17,769
Magoffin	170,960	378,121	78,461	89,468
Martin	728,321	2,008,858	463,898	552,316
Menifee	0	64,768	0	0
Morgan	0	157,093	22	26
Owsley	91,806	225,891	0	0
Perry	1,163,660	1,410,934	921,717	1,096,880
Pike	3,498,267	4,147,132	2,160,683	2,557,973
Pulaski	0	0	8	10
Whitley	160,158	154,521	1,271	1,547
Wolfe	0	78,951	0	0
EKY Total	**$ 12,693,152**	**$ 20,232,515**	**$ 7,967,765**	**$ 9,421,460**
Western KY				
Butler	0	54,322	7	8
Christian	48,201	68,370	901	1,099
Daviess	273,173	92,253	4,934	5,844
Hancock	0	0	1,566	1,877
Henderson	323,736	253,915	108,901	132,758
Hopkins	894,237	781,369	226,168	266,652
McLean	24,308	222,874	168	202
Muhlenberg	510,722	525,761	174,153	205,854
Ohio	139,297	222,929	45,331	55,775
Union	325,462	1,035,147	77,024	93,277
Webster	441,645	1,266,346	272,887	319,579
WKY Total	**$ 2,980,781**	**$ 4,523,286**	**$ 912,040**	**$ 1,082,925**
Multi - County* **		**$ 12,377,900**		
State Total	**$ 15,673,933**	**$ 37,133,701**	**$ 8,879,805**	**$ 10,504,385**

* County and municipal totals for FY2002-2003. Thirty-two (32) coal producing counties and ninety-five (95) cities.

** Includes interest and taxes collected.

*** Counties may jointly apply for multi-county LGEDF Funds. State Allocation Total is only partially authorized.

**** Revenue generated from the Unmined Minerals Tax for some coal counties was unavailable at the time of this publication. The **ad valorem** tax rates on real property vary greatly from county to county. The Revenue Cabinet estimates the counties receive 84.5%, with the remainder being the state share. Not all billable taxes are collected. Columns do not add due to individual rounding.

FY 2002 - 2003 Impacted Counties

The table at left does not include non-producing counties impacted by coal transportation, referred to as "Impacted Counties." These 41 counties and the cities within them received **$1,741,546** in coal severance taxes during FY03.

Economic Impact

The Kentucky coal industry:

- employed 14,812 miners earning over $678.4 million in wages during 2000.
- created a total of 56,219 jobs statewide.
- paid over $141.23 million in severance taxes during FY 2000-01 and generated total state tax revenues of about $403.2 million.
- was a $3.15 billion industry which brought into Kentucky receipts totaling about $2.5 billion from approximately 27 states and 11 countries in 2000.
- created economic activity throughout Kentucky totaling $6.84 billion.

NOTE: Estimated values of coal sold in each state are based upon average per ton gross value of coal produced and processed.

2000 Estimated Distribution of $3.15 Billion

Of the $3.15 billion in receipts from coal produced and processed, the largest part, 38 percent, went to miners' wages and benefits. Another 35 percent went to operating costs, including fuel, materials, maintenance, etc., and the remaining 27 percent went to depreciation (8%), taxes (7%), royalties (6%), net income (2%), and general administration (4%).

2000 Estimated Impact of $3.15 Billion

The $3.15 billion in receipts from coal produced and processed in Kentucky in 2000 generated additional economic activity totaling $3.69 billion and 41,407 jobs. This additional economic activity plus coal production and processing yielded total economic activity in Kentucky of $6.84 billion and 56,219 jobs.

Benefits Throughout the Kentucky Economy

Due to the economic impact of the coal industry throughout Kentucky in 2000, in addition to 14,812 persons working at the mines, 5,403 persons worked in factories making everything from mining equipment to home appliances; 2,348 persons drove coal trucks and cargo trucks, worked at rail yards, etc.; 11,400 persons worked in warehouses, sold clothing, appliances, furniture, in retail stores, etc.; 11,190 persons worked in banks, law offices, engineering firms, accounting firms, and other service businesses; 3,918 persons built homes, offices, factories, and highways; and 7,148 others were teachers, government officials, and a wide variety of other professions and occupations.

Source: Updated from the University of Kentucky Center for Business and Economic Research. Economic Impact Analysis of Coal in Kentucky, (1995) for 2000 by Haywood and Baldwin.

Economic Impacts of All Mining Nationwide

The mining of coal, metals, and industrial minerals creates value by taking natural resources found in the Earth's crust, removing them from their natural setting, and converting them into products useful to human beings.

Mining literally takes a part of nature that has little or no economic value and creates something of value from it. The output of mining, therefore, constitutes *created value*. The payments made by others, by which the mining industry disburses that created value, form a net addition to the stream of income in the economy.

A study for the National Mining Association found that in 1995, the American mining industries (coal mining, metal mining, and industrial minerals mining) had a combined direct and indirect impact on the economy of the United States. That sum included combined direct and indirect contributions personal income, business income, federal government revenues and state and local government revenues.

The total benefit to the nation's economy was nearly nine times the value of the solid minerals that were mined in the United States that year. The total number of American jobs created both directly and indirectly by the domestic mining industry was more than 15 times the number of workers directly involved in mining. And the total personal income generated from mining was enough to pay the wages of nearly five million American workers, only six percent of whom were actually employed in mining.

A major finding of the study was that people don't have to live in a mining state or work directly in the mining industry to benefit from mining. All 50 states benefit from mining.

Source: National Mining Association, Mining and the American Economy - Economy - Everything Begins with Mining, July 1997.

Coal Prices

Coal Prices

There are as many coal price averages as there are coal qualities (i.e., sulfur, Btu), market types (i.e., steam coal, metallurgical or coking, industrial, export), sales conditions (i.e., spot market, extended spot market, short-term contract, long-term contract), sales locations and included costs (i.e. FOB—Free on Board the mine, railcar, river terminal, export terminal, FAS—Free Along Side, CIF—Cargo Cost/ Insurance Freight, total delivered cost). Within each of these ways to sell coal, there are wide price ranges.

Average Value of KY Coal FOB Mine, 2002 (dollars per ton)

	Eastern Kentucky			Western Kentucky			KY
Year	Underground	Surface	Average	Underground	Surface	Average	Average
1976	$26.37	$20.36	$23.03	$15.12	$13.41	$14.18	$19.79
1977	25.98	18.71	21.67	19.88	14.80	17.07	20.02
1978	28.86	22.58	25.30	22.78	18.35	20.36	23.86
1979	30.18	24.85	27.62	26.26	18.79	22.17	26.04
1980	30.98	26.23	28.73	27.40	22.28	24.72	27.62
1981	32.47	28.86	30.72	30.92	25.03	27.66	29.95
1982	32.71	28.85	30.87	32.50	26.53	29.25	30.44
1983	30.71	28.43	29.63	30.72	25.97	28.09	29.20
1984	29.29	27.84	28.61	28.68	25.50	26.81	28.13
1985	29.83	27.41	28.77	26.79	26.68	26.73	28.24
1986	26.89	25.67	26.38	24.25	26.56	25.31	26.09
1987	27.48	25.74	26.71	25.06	24.16	24.68	26.15
1988	27.72	25.92	26.97	24.89	22.32	23.96	26.20
1989	25.69	25.96	25.80	23.03	21.79	22.48	24.97
1990	25.49	26.44	25.84	24.42	22.01	23.32	25.19
1991	26.29	26.51	26.37	24.83	20.26	22.88	25.45
1992	25.32	24.49	25.00	24.75	20.94	23.10	24.50
1993	25.42	25.63	25.50	23.84	20.45	22.36	24.77
1994	26.19	23.92	25.25	25.95	20.07	23.63	24.88
1995	26.52	25.24	26.00	21.33	19.46	20.75	24.79
1996	25.98	23.53	24.98	21.04	18.79	20.38	23.91
1997	26.26	22.45	24.65	20.67	19.92	20.49	23.72
1998	25.36	23.57	24.59	21.23	20.24	21.01	23.82
1999	24.59	23.51	24.14	21.71	19.25	21.15	23.50
2000	25.32	23.59	24.58	21.42	17.91	20.69	23.80
2001	28.11	27.76	27.96	21.72	21.10	21.58	26.77
2002	29.77	28.11	29.04	22.37	21.81	22.23	27.77

Sources: U.S. Bureau of Mines, Minerals Yearbook, 1976, U.S. DOE, Bituminous Coal & Lignite Production and Mine Operations, 1977-1978, and Coal Production, 1979-1992, DOE-EIA, Coal Data: A Reference, May 1989, and Coal Industry Annual, 1993-2002.

Electric Utility Consumption of Coal, 2002

The U.S electric power plant sector reported consumption of 975.9 million tons of coal during 2002. The average delivered price of coal to electric utilities was $24.74 per ton.

Nearly 92% of all coal consumed in the U.S. was in the electric power sector, the driving force for all coal consumption. Coal consumption in the electric power sector increased by 11.4 million tons over 2001.

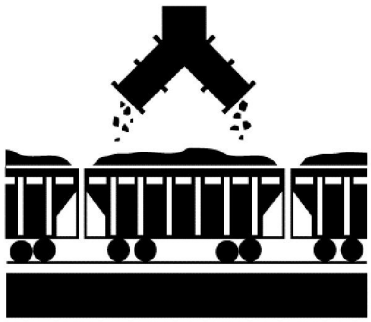
Transportation

In multimodal coal transportation the "initial" transportation mode from the mine site is not always the "primary" mode of coal transportation because:

Shipments of coal moved to consumers primarily by rail can include coal hauled to or away from a railroad siding by truck;

Shipments of coal moved to consumers via river by barge include coal hauled to or away from coal river terminals by truck, rail, or conveyor.

Coal Transportation by Rail in Kentucky



Kentucky has over 2,560 miles of railroad lines. 79.8 million tons of Kentucky coal were transported over these lines in 2002.

There are two Class I railroads, one regional railroad, and two short line railroads that either operate totally within Kentucky or originate coal in Kentucky.

These railroads, along with cars privately owned by electric power companies, have over 48,800 hopper cars dedicated to the transport of coal.

Kentucky has approximately 111 coal rail loading facilities.

Almost all (90+%) rail shipment of Kentucky coal move by unit train service.

Coal Transportation by Barge in Kentucky

Kentucky has more than 1,000 miles of navigable rivers over which approximately 18.1 million tons of Kentucky coal were shipped in 2002.

Statewide, 47 coal river terminals on the Ohio River and its tributaries serve Kentucky coal shippers (35 within Kentucky). In total, 17 coal river terminals are located near Eastern Kentucky, 6 in Central Kentucky, and 24 near Western Kentucky.

Of these, 19 of the coal river terminals have rail access, 39 have truck access, 12 have barge off-loading access, and 6 have conveyor access. Automated blending is found in 31 of the coal river terminals with 28 having automatic sampling, 18 having some coal crushing equipment, and 8 having stoker preparation equipment.

Source: Kentucky Coal Council, Kentucky Coal Marketing Updates-Coal River Terminals, 2003.

Coal Transportation by Truck in Kentucky

Approximately 3,480 miles of state-maintained highways are used to transport coal.

Truck shipments are a very important mode of coal transportation in Kentucky. In 2002, approximately 1.88 billion ton-miles of coal transportation by truck were reported in at least one leg of the many different types of multimodal coal transportation market routes.

Over 2,651 coal trucks were registered during 2002 in Kentucky. Over 2,651 coal truck drivers were employed in Kentucky. The sale of extended weight coal decals generated $777,457 in 2002.

Sources: Kentucky Transportation Cabinet, Official Coal Haul Highway System; Department of Vehicle Regulation—Division of Motor Vehicle Licensing.

Uses of Coal

Distribution of Coal By Consuming Sector, 2002

U.S. TOTAL
1,091,153,000 Tons

Electric power plants represent the largest market for U.S. and Kentucky coal.
The three major markets for coal are electric power, industrial and the export markets.

Electric Power Plants	81.0%	883,722,000 Tons
Other Industrial	13.1%	142,663,000 Tons
Exports	3.6%	39,747,000 Tons
Coke Plants	1.8%	19,333,000 Tons
Resident/Commercial	0.4%	4,445,000 Tons
Unknown	0.1%	1,243,000 Tons

KENTUCKY TOTAL
123,920,000 Tons *

Combining market sectors shows 99.4% of Kentucky's coal goes to the domestic market in 25 states.
Kentucky's other coal is sold to Canada and to 3 other foreign countries.

Electric Power Plants	67.5%	83,614,000 Tons
Other Industrial	30.7%	38,045,000 Tons
Resident/Commercial	0.7%	875,000 Tons
Exports	0.6%	791,000 Tons
Unknown	0.4%	490,000 Tons
Coke Plants	0.1%	105,000 Tons

Eastern Kentucky
99,284,000 Tons

Eastern Kentucky's market has seen the largest increase in the industrial market (33.2%), the export and coking markets have declined while the electric power plant market remains predominate at 64.7%.

Electric Power Plants	64.7%	64,230,000 Tons
Other Industrial	33.2%	33,001,000 Tons
Exports	0.8%	791,000 Tons
Resident/Commercial	0.7%	674,000 Tons
Unknown	0.5%	482,000 Tons
Coke Plants	0.1%	105,000 Tons

Western Kentucky
24,636,000 Tons

Western Kentucky's market has seen the largest increase in the industrial market (20.5%), while remaining almost totally dependent on the electric power market with 78.7% of its coal going to electric power plants.

Electric Power Plants	78.7%	19,384,000 Tons
Other Industrial	20.5%	5,044,000 Tons
Resident/Commercial	0.8%	200,000 Tons
Unknown	<0.1%	8,000 Tons

Source: U.S. DOE—Energy Information Administration, Coal Industry Annual, 2002.
* NOTE: Tonnage included in this figure is coal reported to DOE as loaded and shipped. It does not include tonnage in stockpile waiting for export.
NOTE: Due to rounding, numbers may not add to the totals.

Electric Utility Shipments

Kentucky coal was shipped to electric power plants in 25 states in 2002. The Eastern Kentucky coal field shipped approximately 64.23 million tons of coal to electric power plants located in 23 states during 2002. The Western Kentucky coal field sold approximately 19.38 million tons of coal to electric power plants in 8 states during 2002. These electric power plants purchased 83.62 million tons of Kentucky coal during 2002.

Kentucky Coal Shipments To Electric Utility Plants, 2002

Eastern Kentucky Coal Field

Destination (State)	Receipts in Tons
Alabama	26,000
Connecticut	204,000
Delaware	249,000
D.C.	3,000
Florida	6,943,000
Georgia	14,933,000
Illinois	42,000
Indiana	178,000
Kentucky	3,892,000
Maryland	1,051,000
Massachusetts	313,000
Michigan	3,524,000
Mississippi	1,021,000
Missouri	16,000
New York	223,000
North Carolina	8,046,000
Ohio	4,966,000
Pennsylvania	1,084,000
South Carolina	7,627,000
Tennessee	3,312,000
Virginia	6,079,000
West Virginia	409,000
Wisconsin	89,000
EKY Utility Shipments	**64,230,000**

Western Kentucky Coal Field

Alabama	687,000
Florida	3,230,000
Illinois	19,000
Indiana	135,000
Kentucky	11,705,000
Louisiana	186,000
Minnesota	33,000
North Carolina	60,000
Tennessee	3,329,000
WKY Utility Shipments	**19,384,000**

Distribution of Kentucky Coal to All Sectors

(Includes electricity generation, coke plants, Industrial plants, residential & commercial).

Kentucky distributed a total of 124.5* million tons of coal in 2002.

East KY Total Distribution	**99.9 million tons	West KY Total Distribution	24.6 million tons
East KY Delivered to Kentucky	18.3 million tons (18%)	West KY Delivered to KY	16.5 million tons (67%)
East KY Delivered Out of State	**81.6 million tons (82%)	West KY Delivered Out of State	8.1 million tons (33%)

Seventy two percent of Kentucky coal is shipped out of state.
Twenty eight percent of Kentucky coal remains in state.

* NOTE: Tonnage included in this figure includes coal exported and coal waiting in stockpile to be exported.
** Includes coal that is exported.

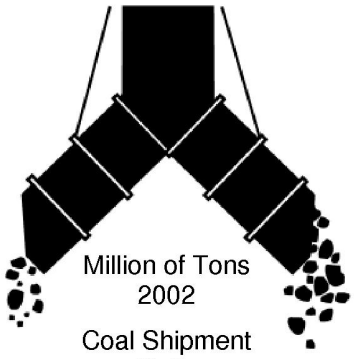
Source: U.S. DOE—Energy Information Administration, Coal Industry Annual, 2002.

Distribution — State to State

Kentucky exports over 2.2 tons of electric power plant coal to neighboring states for every ton imported. The chart below shows the ***Interstate Imports and Exports*** of electric power plant coal between Kentucky and its neighboring states.*

Kentucky
Interstate Import

Coal from Neighboring States Delivered to Electric Power Plants In Kentucky.



Million of Tons
2002

Coal Shipment
Ratio
And
Net Flow

Kentucky
Interstate Export

Kentucky Coal Delivered to Electric Power Plants in Neighboring States

Kentucky receives from Illinois 0.85	KY : IL 1 : 14	Illinois receives from Kentucky 0.06
Kentucky receives from Indiana 1.46	KY : IN 1 : 5	Indiana receives from Kentucky 0.31
Kentucky receives from Missouri 0.00	KY : MO N/A	Missouri receives from Kentucky 0.02
Kentucky receives from Ohio 0.15	KY : OH 33 : 1	Ohio receives from Kentucky 4.97
Kentucky receives from Tennessee 0.01	KY : TN 664 : 1	Tennessee receives from Kentucky 6.64
Kentucky receives from Virginia 0.05	KY : VA 121 : 1	Virginia receives from Kentucky 6.08
Kentucky receives from West Virginia 5.99	KY : WV 1 : 15	West Virginia receives from Kentucky 0.41

Kentucky's Utilities Import from Neighboring States 8.51 Million Tons of Coal	**2.2 : 1**	**Kentucky Exports to Utilities in Neighboring States 18.49 Million Tons of Coal**

* Does not include metallurgical or industrial coal shipments, or Kentucky's imports of coal from Colorado (4.5 million tons), Pennsylvania (1.8 million tons), and Wyoming (2.2 million tons).
Kentucky's imports from Colorado and Wyoming has increased over 2.5 million tons in the last 2 years.

Source: U.S. DOE—Energy Information Administration, Coal Industry Annual, 2002.

Coal Exports / Imports

In 2002, the U.S. exported 39.7 million tons of coal (20.4 million steam coal and 19.3 million metallurgical coal). Steam coal became the majority of U.S. exports, with its share at 52% in 2002. U.S. coal exports in 2002 were down by almost 44 million tons from 1987. U.S. coal imports totaled 16.9 million tons in 2002, an increase of over 9 million tons since 1997.

Kentucky's 2002 exports of 1.4 million tons were 3.5% of total U.S. exports. Kentucky exported coal to four foreign countries during 2002 at an estimated value of $64.3 million. **Down over $105 million from 2000**.

Kentucky Coal Exports, 2002

Country of Destination	KY Steam Export Coal (tons)	Estimated Value KY Steam Export Coal ($)	KY Metallurgical Export Coal (tons)	Estimated* Value KY Metallurgical Export Coal ($)	Total KY Export Coal (tons)	Estimated* Value KY Export Coal ($)
Canada	-	-	433,000	16,679,160	433,000	16,679,160
Italy	-	-	227,000	11,615,590	227,000	11,615,590
The Netherlands	-	-	468,000	23,517,000	468,000	23,517,000
United Kingdom	-	-	276,000	12,513,840	276,000	12,513,840
KENTUCKY TOTALS	**-**	**-**	**1,404,000**	**64,325,590**	**1,404,000**	**64,325,590**

* **NOTE:** The value of Kentucky export coal (in current dollars) is estimated by using published U.S. free alongside ship (FAS) average values/ton/coal type/country of destination.

Source: Estimated by the Kentucky Coal Council using data from the Energy Information Administration, Quarterly Coal Report, October—December, 2002.

U.S. Coal Imports*

Columbia (9.2 million tons), Venezuela (3.4 million tons), Canada (2.1 million tons), Indonesia (0.9 million tons), and Australia (0.8 million tons) were the largest suppliers of imported coal in 2002.

U.S. Coal Imports*

Year	Quantity (millions)	Average Price/Ton
1981	1.043	$28.47
1982	0.742	$30.40
1983	1.271	$33.59
1984	1.286	$35.37
1985	1.952	$36.04
1986	2.212	$36.02
1987	1.747	$32.04
1988	2.134	$29.96
1989	2.851	$34.14
1990	2.699	$34.45
1991	3.390	$33.12
1992	3.803	$34.46
1993	7.309	$29.89
1994	7.584	$30.21
1995	7.201	$34.13
1996	7.127	$33.45
1997	7.487	$34.32
1998	8.724	$32.18
1999	9.089	$30.77
2000	12.513	$30.10
2001	19.787	$34.00
2002	16.875	$35.51

* NOTE: Includes Puerto Rico and Virgin Islands.

Source: U.S. DOE Energy Information Administration, Coal Industry Annual, 2002.

Petroleum Coke

Between 1984 and 2002, petroleum coke received by electric power plants increased almost nine fold — from 335,200 in 1984 to 2,677,000 in 2002. The average delivered cost of petroleum coke at electric utilities declined from 128.6 cents per million Btu in 1984 to 100.8 cents per million Btu in 2002.

Petroleum Coke—Electric Utilities

Year	Tons (000)		Cents per Million Btu
1984	335		128.6
1986	359		105.5
1988	355		97.2
1990	554		80.3
1992	687		75.0
1994	1,263		68.9
1996	1,410		78.2
1998	6,216	*	71.2
1999	4,690	*	65.4
2000	4,153	*	58.5
2001	2,019	(Utility Plant only)	78.4
2001	N/A	(Non-Utility Plant)	N/A
2002	2,677	(Utility Plant only)	62.5
2002	1,770	(Non-Utility Plant)	100.8

* NOTE: Includes utility and non-utility plants. N/A: Not Available

Source: U.S. DOE Energy Information Administration, Petroleum Coke Tables. Electric Power Monthly, Cost & Quality, 2002.

Air Quality / By-Products

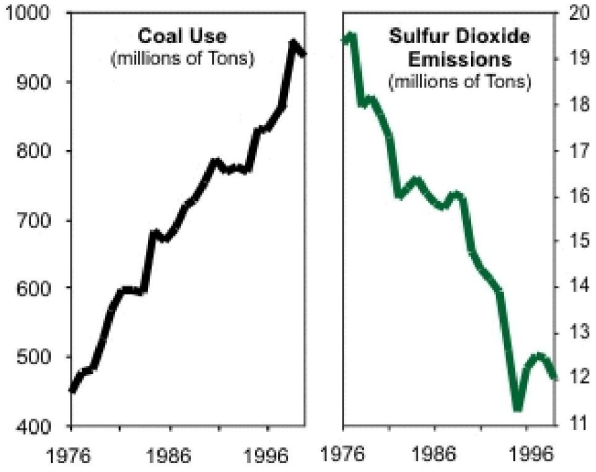
Coal Use and Sulfur Dioxide Emissions from Electric Power Utility Plants

Coal is being burned more cleanly today than ever before. Air pollution from coal is decreasing, while coal use is increasing.

Coal-fired power plants in the U.S. have reduced their sulfur dioxide emission rate (the amount of pollution produced for each ton of coal burned) by 71% from 1976 to 1999.

U.S. sulfur dioxide emissions have decreased by 39% from 1976 to 1999, even though power plants increased their coal use by 112% between 1976 to 1999.

Kentucky's 1997 sulfur dioxide emissions of 796,000 tons have been reduced by 47% from the 1976 sulfur dioxide emissions level of 1,495,622 tons.



These achievements are the result of using lower-sulfur coal and pollution control equipment such as scrubbers. The use of flue gas desulfurization equipment (FGD or scrubbers) has increased dramatically. Kentucky is second in the nation in installed scrubber capacity. Utilities in Kentucky during 1999 had scrubbers on 48% of their coal-fired generating capacity, compared to the national average of 27%.

Sources: Environmental Quality Commission (EQC), The State of Kentucky's Environment: 2000-01 Air Quality; U.S. DOE - EIA, Electric Power Annual, 1989-2000; Cost and Quality of Fuels for Electric Utility Plants, 2000.

Coal Combustion By-Products

There are currently 16 ash landfills permitted totaling 6,062 acres of land for disposal of ash from existing power plants. Approximately one acre of landfill space is required to dispose of 100,000 tons of ash. At the current rate, 1,000 acres of permitted area will accommodate the existing volume of ash being landfilled for the next 20 years, the average life expectancy of a landfill. Coal combustion in Kentucky produced 3.2 million tons of fly ash, 1.1 million tons of bottom ash, and 3.2 million tons of flue gas desulfurization (FGD) materials during 1996. According to a 1996 University of Kentucky Center for Applied Energy Research survey, 10.3% (0.8 million tons) of the 7.5 million tons coal combustion by-products produced within Kentucky were reused. Combustion materials generated within Kentucky do not include the coal combustion material generated from the combustion of Kentucky coal in 27 other states during 2000.

2002 U.S. Coal Combustion By-Product Production & Consumption (million tons)

	Production	Consumption	% Used
Fly Ash	76.5	26.6	34.8
Bottom Ash	19.8	7.6	38.8
Boiler Slag	1.9	1.5	80.7
FDG Material (combined)	28.3	8.3	22.6

Source: American Coal Ash Association, Inc. 2002 CCP Survey

Existing Consumption

- Cement and concrete products
- Road base/subbase
- Snow and ice control
- Grouting/wallboard
- Coal mining applications
- Structural fill/flowable fill
- Mineral filler in asphalt
- Blasting grit/roofing granules
- Waste stabilization

Source: UK - Center for Applied Energy Research, Kentucky Natural Resources and Environmental Protection Cabinet Report, December 2001.

Reclamation

Mined land must be returned to its approximate original contour, with the exception of mountaintop removal operations, in accordance with the federal Surface Mining Control and Reclamation Act of 1977.

According to the 1977 law, mountaintops may be reclaimed as flat land, leaving the land more valuable for development. Reclaimed land must be as useful as the land was before mining. Land is frequently more valuable and useful after mining reclamation.

Stringent regulations govern the design, operation, and environmental impact of every mine. Mining and reclamation sites are inspected on a regular basis by state inspectors. Federal inspectors also conduct random oversight inspections.

Kentucky coal operators have paid over $872.12 million to date into a federal program to reclaim land mined prior to August 3, 1977.

Before surface mining begins, Kentucky coal operators must post bonds to ensure proper reclamation.

Under Kentucky's 1984 Permanent Program ("Primacy Program"), bonds are not fully released until a coal operator has demonstrated five years of consecutive successful reclamation (see chart below).

As of December 2003, the Kentucky mining industry had a total of 7,876 outstanding bonds, valued at $788.9 million. The bonds assure timely and successful reclamation.

Mining reclamation bonds are released in the following phases:

Bond Release Phase	Reclamation Release Type	% of Bond Released	Time/Phase Requirement
Phase I	Backfilling, grading, seeding, & drainage	60%	Complete landscaping
Phase II	Vegetation	25%	Two years of successful reclamation
Phase III	Final	15%	Five years of consecutive successful reclamation

Successful Mining Reclamation/Primacy Bond Releases, 1984—2003

	Phase I			Phase II			Phase III		
Year	# of Releases	Acres* Released	Bond Amount	# of Releases	Acres* Released	Bond Amount	# of Releases	Acres* Released	Bond Amount
1984	4	123	$277,886	-	-	-	-	-	-
1985	40	767	$1,946,323	2	84	$79,841	1	8	$11,600
1986	248	6,361	$16,781,470	-	-	-	1	14	$16,800
1987	332	8,379	$21,390,109	11	253	$289,767	4	155	$284,300
1988	561	15,583	$38,194,394	57	1,303	$1,261,810	-	-	-
1989	446	16,777	$32,058,350	60	1,632	$1,967,811	3	21	$38,500
1990	533	15,383	$28,108,146	260	7,298	$6,221,870	51	1,697	$1,569,147
1991	626	14,642	$28,373,662	428	12,667	$11,200,897	130	2,958	$6,890,877
1992	670	18,278	$33,822,612	477	13,338	$11,489,035	255	8,101	$6,811,872
1993	498	13,893	$25,386,134	416	12,661	$11,242,965	448	15,986	$8,629,089
1994	452	15,933	$27,423,038	319	10,828	$9,768,647	406	14,098	$8,709,946
1995	525	16,650	$32,343,224	427	13,141	$12,399,017	517	18,419	$16,338,524
1996	619	23,968	$47,602,996	419	14,784	$17,378,599	784	27,018	$22,365,232
1997	393	13,179	$23,571,000	373	13,323	$13,463,098	806	30,768	$29,923,783
1998	351	12,646	$28,589,902	255	8,104	$9,370,064	747	21,387	$18,859,893
1999	357	11,259	$20,644,178	192	5,971	$6,719,383	602	19,774	$23,043,414
2000	285	10,237	$18,529,971	206	6,380	$9,449,942	587	20,678	$17,215,050
2001	268	9,837	$13,321,034	175	7,963	$12,064,790	439	13,274	$14,176,508
2002	398	14,380	$19,236,198	142	5,929	$6,130,207	449	15,384	$16,013,176
2003	396	12,296	$16,879,563	143	5,855	$5,424,044	367	10,462	$11,291,162
Total	**8,002**	**250,571**	**$474,480,190**	**4,362**	**141,514**	**$145,921,787**	**6,597**	**220,202**	**$202,188,873**

* **NOTE:** Includes surface acreage over underground mines.
Source: Kentucky Environmental and Public Protection Cabinet

Post-Mining Land Uses

Post-mining land use changes go hand-in-hand with economic development in Kentucky, especially in many parts of Eastern Kentucky where much needed level to gently rolling land for development is still at a premium.

Post-Mining Land Use and County

Regional Airports

Big Sandy Regional Airport	Martin
Hatcher Field Airport	Pike
Carroll Field Airport	Breathitt
Ford Airport	Perry
Ohio County Airport	Ohio

Correctional Facilities

Federal Correctional Institute	Clay, Martin
East Kentucky Correctional Complex	Morgan
Medium Security Prison	Muhlenberg, Knott (in development)
Otter Creek Correctional Center	Floyd
Juvenile Boot Camp	Breathitt

Government Facilities

Earle C. Clements Job Corps Ctr.	Muhlenberg
Army National Guard Training Ctr.	Muhlenberg
U.S. Postal Service	Laurel
County Park	Ohio
Madisonville South By-Pass	Hopkins
Solid Waste Landfills	Daviess, Greenup, Ohio, Hopkins, Perry, Lee
Hazard Armory	Perry
Jail and State Police Barracks	Perry
Veterans' Nursing Home	Perry

Fish & Wildlife

Duck Refuge Areas	Ohio, Perry, Breathitt, Knott, Martin, Muhlenberg
Catfish Farming	McLean
Wildlife Management Area	Muhlenberg, Ohio, Perry
Wetland Development	Muhlenberg

Elk in the Mountains of East Kentucky Again

Free-ranging elk return to the mountains of East Kentucky, with reclaimed mountaintop removal areas, old reclaimed mine benches, and hardwood forests serving as their home once again. The first hunter in more than 150 years to legally kill an elk in Kentucky did so in 2001.

Farms

Starfire Project	Perry
MAPCO / Morehead Agriculture Ctr.	Martin
Martin County Coal Corp. Farm	Martin
D&R Brangus Farm	Perry
Hog Farm	Hopkins, Knox
Avian Farms	Wayne
Agricultural Project	Pike
Chicken / Broiler Houses	Hopkins, Muhlenberg
Livestock Feed	Greenup, Harlan, Lee, Johnson, Wolfe, Whitley

Industrial / Commercial

Electrical Construction Office and Shop	Hopkins
Electric Utility Operations Center	Hopkins
Industrial Scrubber Sludge Disposal	Ohio, Daviess, Webster
Explosive Manufacturing	Muhlenberg
Wood Fabrication Plant	Breathitt, Perry, Pike (proposed)
Apparel Manufacturing	Perry, Boyd
Mine Shops / Welding / Machine / Equip.	Johnson, Hopkins, Knox, Muhlenberg, Ohio, Union, Whitley
Trucking Company	Muhlenberg, Boyd
Truck / Equipment Sales	Butler
Explosive Company	Perry, Hopkins
Farm Equipment	Hopkins
Sawmill / Logs / Lumber	Bell, Butler, Clay, Jackson, Laurel, Pike, Whitley, Wolfe
Recycling Facility	Letcher
Blacktop / Concrete Facilities	Laurel, Perry
Oil / Gas Facilities	Clay, Lee, Elliott

(Continued on page 26)

Post-Mining Land Uses cont.

Industrial / Commercial continued

Cabinet Factory	Perry
Clay-Leslie Regional Industrial Park	Clay, Leslie
Coalfields Regional Industrial Park	Breathitt, Harlan, Leslie, Perry
Corbin Tri-County Industrial Park	Knox
East Park Regional Industrial Park	Boyd, Carter, Elliott, Greenup, Lawrence
Equipment Rental / Sales	Boyd
Gateway Regional Business Park	Floyd, Knott, Letcher, Pike
Honey Branch Regional Business Park	Floyd, Johnson, Magoffin, Martin, Pike
Little Goose Industrial Site	Clay
Maggie Mountain Industrial Park	Floyd
Paul Coffey Industrial Park	Boyd
Pine Mountain Regional Business Park	Bell, Harlan, Knox, Letcher, Whitley
Retail Outfitters	Clay
South McCreary Industrial Park	McCreary (in development)
Tooling Company	Clay
Uniform Rental Services	Carter
Utility	Boyd, Knott, Perry
Wireless Communications	Carter
Plastic Injection Molding Company	Perry
Mine / Electronics Supply	Martin
Industrial Parkway	Greenup
United Parcel Services	Perry, Boyd
Unified Power Distribution	Martin

Rail-to-Trails: Old coal haul rails have been removed to make walking trails in Muhlenberg, Union, and Webster counties.

R&R / Sport

Baseball Fields	Boyd
Coal Hollow Park	Floyd
Elkhorn Educational Recreation Park	Floyd
Golf Courses	Clay, Laurel, Letcher, Floyd, McLean, Owsley (proposed)
Recreational Area	Lee, Greenup
Red Fox Resort	Knott (in development)
Stonecrest Golf Course	Floyd
Wayland Park	Floyd
Golf (drive & putt)	Webster
Recreational Area & Fishing Lake	Pike
Athletic Facilities	Letcher
Fairgrounds	Morgan
Riding Stables & Trails	Muhlenberg
Campground (proposed)	Hopkins

Mountaintop Mining: Mining is only a temporary land use. Mountaintop mining has created several sites for new schools, hospitals, shopping centers, parks, golf courses, housing, airports, industry, agriculture and timber in Eastern Kentucky.

Structural Building Sites

High Schools	Pike
Elementary School	Boyd
Flea Market	Perry
Athletic Complexes	Letcher, Pike
Appalachian Regional Hospital	Perry
Housing Developments	Bell, Boyd, Clay, Floyd, Greenup, Harlan, Johnson, Knox, Laurel, Lee, Leslie, Letcher, Martin, Perry, Pike
Church, Daycare	Laurel, Perry
Mobile Home Sales	Laurel
Shopping Centers	Breathitt, Clay, Knox, Laurel, Leslie, Letcher, Pike, Perry
Car / Truck / Equipment Sales	Perry
Motel / Hotel	Laurel, Perry
Office Complex	Morgan, Martin, Perry, Pike (proposed)
Storage Rental Facility	Hopkins, Perry
Off Track Betting	Perry
Telecommunications Call Center	Perry

Numerous small businesses in Eastern Kentucky

Sources: Environmental and Public Protection Cabinet, Area Development Districts, Kentucky Coal Council.

AML Reclamation

Abandoned Mine Land (AML) Reclamation

The federal Surface Mining Control and Reclamation Act of 1977 established authority for the AML Fund. Production fees of $0.35 per ton for surface-mined coal and $0.15 per ton for underground-mined coal are collected from coal producers at all active coal mining operations. These funds reclaim pre-law (1977) and certain interim program (1977-1982) sites left abandoned, un-reclaimed, or insufficiently reclaimed.

The Kentucky coal industry (through FY 2003) has contributed $872.12 million to the Abandoned Mine Land (AML) Reclamation Fund since 1978. Nationally, over $6.56 billion (through FY 2003) has been paid by active coal operators across the United States.

Fifty percent of the total Kentucky AML fees go directly to the state share account. However, $120.5 million (September, 2003) is unallocated due to the federal appropriation process (see Kentucky State Share Balance column in table below).

$1,440,443,393 of AML taxes remain unallocated for reclaiming abandoned mines across the United States.

Abandoned Mine Land (AML) Reclamation Fund (millions)

Fiscal Year	Kentucky Collection	Kentucky State Share*	KY AML Grant Disbursement	KY State Share Balance**
1978	$20.38	$14.98	$ 0	$15.0
1979	31.18	16.85	0.6	31.8
1980	34.64	17.51	0	49.3
1981	36.52	17.91	1.4	67.2
1982	38.60	18.29	16.4	69.6
1983	31.46	15.56	28.9	56.7
1984	38.12	18.87	36.8	44.8
1985	36.91	17.30	32.3	31.4
1986	35.29	17.25	19.7	31.6
1987	35.02	17.61	16.4	36.7
1988	26.34	13.17	15.3	37.5
1989	35.39	17.69	27.6	38.5
1990	38.40	19.41	6.4	43.3
1991	37.04	18.45	11.0	47.8
1992	35.60	17.82	28.2	54.9
1993	36.18	18.04	11.5	62.8
1994	36.82	18.24	18.7	70.7
1995	35.49	17.61	15.5	77.1
1996	33.98	16.90	16.0	83.6
1997	34.66	17.24	16.1	90.1
1998	35.04	17.45	15.7	97.4
1999	32.38	16.15	16.5	103.4
2000	30.49	15.19	17.0	108.0
2001	29.42	14.71	18.8	111.9
2002	30.16	15.03	16.7	116.9
2003	26.71	13.35	16.4	120.5
Totals	**872.12**	**438.58**	**419.9**	

* **NOTE:** Includes reclamation fees, interest, and audit adjustments and will not equal exactly 50%.
** **NOTE:** Adding across table will not equal balance, due to all adjustments not being included in table.

AML Reclamation Accomplishments in Kentucky (through 2003)

Kentucky AML Projects	Federal AML Projects
745 Multi-site State AML Projects	1,255 Multi-site AML Projects
$419 million in expenditures	$130 million in expenditures
15,400 acres reclaimed	Rural Abandoned Mine Program
(plus various projects currently under construction)	Emergency and Non-Emergency

From 1978-2003, 2,000 multi-site AML projects have been undertaken in Kentucky by both the federal and state programs reclaiming thousands of acres and spending $499 million in AML funds.

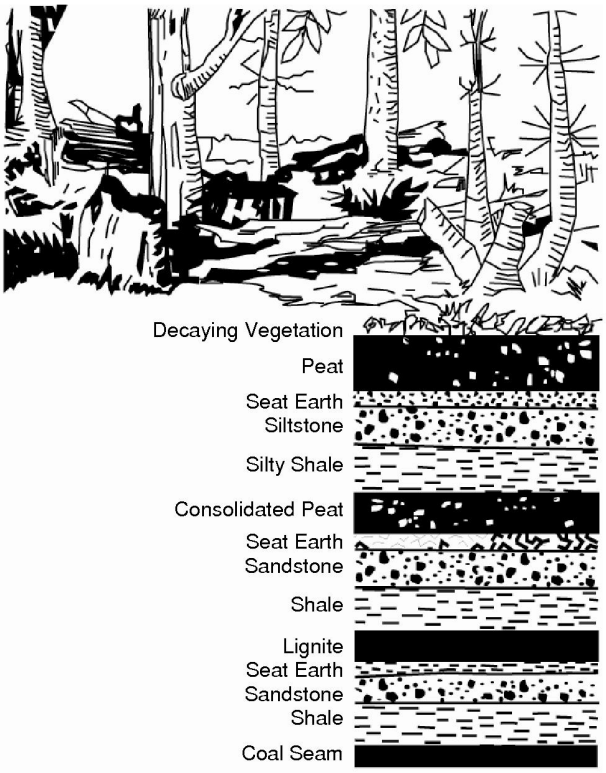
Some accomplishments to date of the state's AML projects in Kentucky are:

77 water line projects—$64 million.	1,843 mine portal closures.
over 33,000 feet of high wall eliminated.	143 vertical shafts sealed.
over 200 hazardous structures removed.	44 miles of stream restoration.
over 2,000 acres of landslide projects stabilized.	297 acres of mine fires controlled.

Today's coal industry in Kentucky is reclaiming mined land to uses as good as or better than before mining, and through contributions to the AML fund, helping to restore previously mined lands to current reclamation standards.

Sources: Environmental and Public Protection Cabinet; Division of Abandoned Lands; Office of Surface Mining (OSM); U.S. Department of Agriculture, RAMP

Coal Origin and Properties



It is generally accepted that coal originated from plant debris including ferns, trees, bark, leaves, and seeds some of which accumulated and settled in swamps.

This unconsolidated accumulation of plant remains is called peat. Peat is being formed today in marshes and bogs.

Layers of peat, covered by sediment receiving heat and pressure from the subsidence of the swamps, went through a metamorphic process called coalification to form coal.

The metamorphic process is thought to have occurred in several stages. The conditions of the metamorphic process and the swamps and bogs greatly affected the formation of the coal.

Several factors which greatly affected the content, makeup, quality, and rank of the coal were:

Temperature	Fresh water/sea water
Pressure	Swamp acidity
Time	Types of plant debris
Layering process	Types of sediment cover

Coal first formed from peat has a high moisture content and a relatively low heating value.

Coal Rank

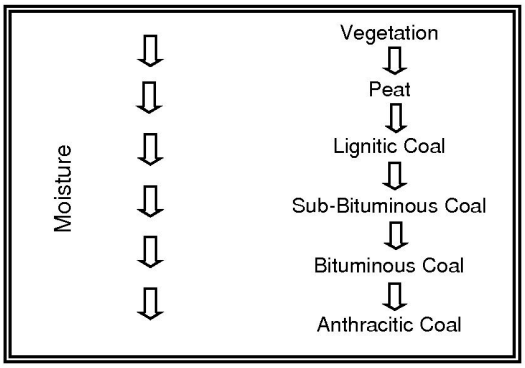
Coal usually is divided into two main classes - anthracite (hard coal) and bituminous (soft coal). When anthracite was formed, it was squeezed under greater heat and pressure than was bituminous. As a result, anthracite contains the highest percentage of carbon and the lowest percentage of moisture. Anthracite makes up only a small part of the world's supply of coal. About half of the world's coal reserve is bituminous coal. (See U.S. Coal Reserves map.) Remaining coal reserves are even softer (lignite and sub-bituminous).

Moisture decreases, rank increases.

Rank increases, fixed carbon increases.

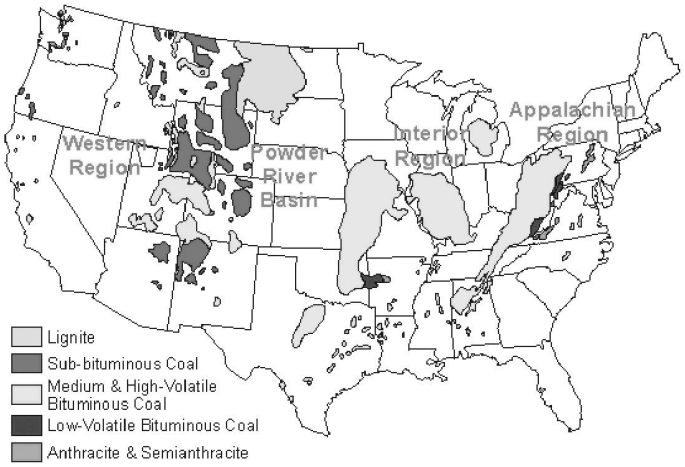
Rank increases, volatile matter decreases.

Rank increases, heating value increases (optimum Btu at low-volatile bituminous).



U.S. Comparisons — Production

U.S. Coal Fields and Coal Producing Areas



Coal Production by State, 2002 (thousand tons)

State and Region	Total	Anthracite	Bituminous	Sub-Bituminous	Lignite
Alabama	18,931	—	18,931	—	—
Alaska	1,146	—	—	1,146	—
Arizona	12,804	—	12,804	—	—
Arkansas	14	—	14	—	—
Colorado	35,103	—	27,715	7,388	—
Illinois	33,314	—	33,314	—	—
Indiana	35,337	—	35,337	—	—
Kansas	205	—	205	—	—
Kentucky, Total	**124,142**	—	**124,142**	—	—
Eastern	**99,398**	—	**99,398**	—	—
Western	**24,744**	—	**24,744**	—	—
Louisiana	3,803	—	—	—	3,803
Maryland	5,147	—	5,147	—	—
Mississippi	2,305	—	—	—	2,305
Missouri	248	—	248	—	—
Montana	37,386	—	—	37,058	328
New Mexico	28,916	—	14,428	14,488	—
North Dakota	30,799	—	—	—	30,799
Ohio	21,157	—	21,157	—	—
Oklahoma	1,406	—	1,406	—	—
Pennsylvania	68,393	1,303	67,090	—	—
Tennessee	3,166	—	3,166	—	—
Texas	45,247	—	22	—	45,225
Utah	25,304	—	25,304	—	—
Virginia	29,956	—	29,956	—	—
Washington	5,827	—	—	5,827	—
West Virginia, Total	150,078	—	150,078	—	—
Northern	34,033	—	34,033	—	—
Southern	116,045	—	116,045	—	—
Wyoming	373,161	—	715	372,447	—
Appalachian Total	396,227	1,303	394,924	—	—
Interior Total	146,622	—	95,289	—	51,333
Western Total	550,446	—	80,965	438,354	31,127
East of Miss. River	491,927	1,303	488,318	—	2,306
West of Miss. River	601,368	—	82,860	438,354	80,154
U.S. Total	**1,093,295***	**1,303**	**571,178**	**438,354**	**82,460**

Source: U.S. DOE - Energy Information Administration, Coal Industry Annual, 2002
(* Note: U.S. Total does not include 988,000 tons of Refuse Recovery).

U.S. Coal Reserves

2002 U.S. Demonstrated Coal Reserve Base (millions of tons)

The U.S. Demonstrated Coal Reserve Base is an estimate of the tonnage of economically available coal.**

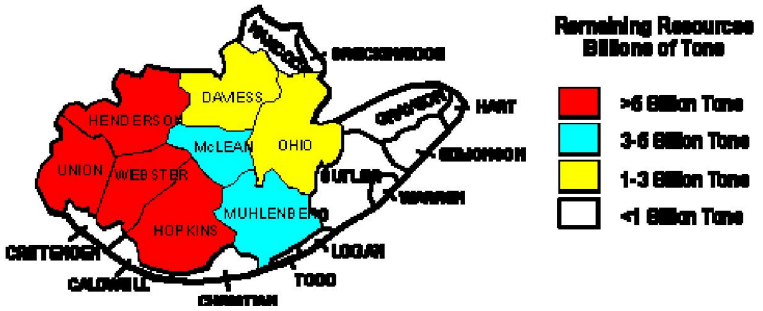
Coal Producing Region and State	Anthracite	Bituminous	Sub-Bituminous	Lignite	Total** (millions of tons)
Appalachian Total	**7.1%**	**91.9%**		**1.0%**	**103,586.7**
Alabama		74.9%		25.1%	4,318.4
Georgia		100.0%			3.6
Kentucky, Eastern		100.0%			10,977.3
Maryland		100.0%			669.3
North Carolina		100.0%			10.7
Ohio		100.0%			23,419.4
Pennsylvania	25.9%	74.1%			27,838.1
Tennessee		100.0%			787.2
Virginia	6.8%	93.2%			1,849.7
West Virginia		100.0%			33,713.0
Interior Total	**<0.1%**	**91.7%**		**8.2%**	**158,176.8**
Arkansas	24.9%	69.0%		6.1%	416.8
Illinois		100.0%			104,647.9
Indiana		100.0%			9,636.6
Iowa		100.0%			2,189.5
Kansas		100.0%			972.8
Kentucky, Western		100.0%			19,637.1
Louisiana				100.0%	436.5
Michigan		100.0%			127.7
Missouri		100.0%			5,991.3
Oklahoma		100.0%			1,561.6
Texas				100.0%	12,559.0
Western Total	**<0.1%**	**10.3%**	**77.1%**	**12.5%**	**235,944.1**
Alaska		11.4%	88.4%	0.2%	6,115.1
Arizona		100.0%			37.7
Colorado	0.2%	51.4%	22.9%	25.5%	16,429.9
Idaho		100.0%			4.4
Montana		1.2%	85.6%	13.2%	119,376.7
New Mexico	<0.1%	29.7%	70.3%		12,249.5
North Dakota				100.0%	9,166.0
Oregon			100.0%		17.5
South Dakota				100.0%	366.1
Utah		>99.9%	<0.1%		5,534.5
Washington		22.4%	77.0%	0.6%	1,355.6
Wyoming		6.6%	93.4%		65,291.1
U.S. Total	**1.5%**	**53.2%**	**36.6%**	**8.7%**	**497,707.6**

** Kentucky coal resource values are considered by some to be too high, while the Eastern Kentucky "Demonstrated Coal Reserve Base" value is still openly rejected by many others as being too low.
Source: U.S. DOE—EIA, U.S. Coal Reserves; 2002 Update (January 2003).

Kentucky Coal Resources

Western Kentucky Coal Field

The Western Kentucky coal field covers 6,400 square miles and contains over 35.8 billion tons of remaining resources. (Part of this cannot be mined economically using today's technology). The remaining resources and their locations are illustrated below.

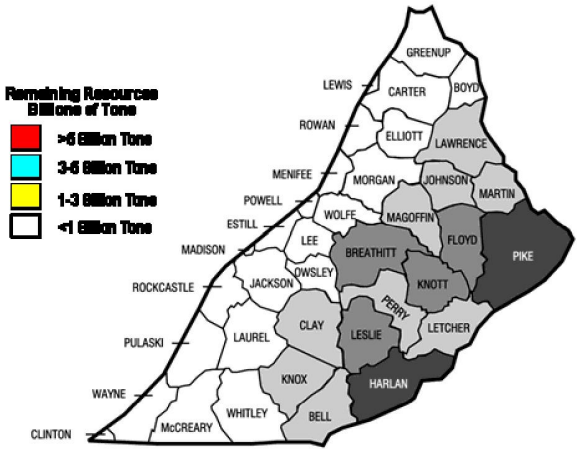


There are 35 named coal beds, of which seven principal coal beds contain about 94% of the resources in Western Kentucky.

Over 5 billion tons of coal have been mined or lost due to mining, amounting to only about 12.7% of total Western Kentucky coal resources.

Eastern Kentucky Coal Field

The Eastern Kentucky coal field covers 10,500 square miles and contains approximately 52.3 billion tons of remaining resources. (Part of this cannot be mined economically using today's technology). The remaining resources and their locations are illustrated below.



There are more than 80 named coal beds in the Eastern Kentucky coal field which covers parts of 37 counties.

Approximately 11.8 billion tons of coal have been mined or lost due to mining, amounting to only about 18.4% of total Eastern Kentucky coal resources.

How To Calculate Tons of Coal

Total Tons = _____ Acres **x** _____ Inches **x** 135 tons per acre - inch
(acres of coal) **x** (height of coal) **x** (density of coal)

Source: Updated from Brant and Other, Coal Resource Series, 1980-1983.

Kentucky Coal Resources

Original resource estimates for Western and Eastern Kentucky were 41 and 64 billion tons respectively. The resources currently remaining after 200 years of mining are estimated to be 35.8 billion tons in Western Kentucky and 52.3 billion tons in Eastern Kentucky. As shown in the Demonstrated Reserve Base (DRB) tables on page 30, assumptions on the percentage available for development reduce those values even further.

Western Kentucky Coal Resources, 2002

County	Original	Mined	Lost	Remaining
Butler	413.69	30.20	30.20	353.29
Daviess	1,330.32	62.26	62.26	1,205.80
Henderson	6,852.78	70.32	70.32	6,712.14
Hopkins	8,814.80	761.98	761.98	7,290.84
McLean	3,576.41	19.73	19.73	3,536.95
Muhlenberg	4,723.84	741.03	741.03	3,241.78
Ohio	1,824.55	264.13	264.13	1,296.29
Union	6,506.98	325.10	325.10	5,856.78
Webster	6,322.95	314.71	314.71	5,693.53
Other*	623.08	25.44	25.44	572.20
WKY Total	**40,989.40**	**2,614.90**	**2,614.90**	**35,759.60**

Original Coal Resources
Estimate (41 Billion Tons)

2.6 billion tons mined 1790-2002

2.6 billion tons lost due to mining 1790-2002

19.64 billion tons in DRB**

16.12 billion tons remaining, but not in DRB**

* **NOTE**: "Other" includes Breckinridge, Caldwell, Christian, Crittenden, Edmonson, Grayson, Hancock & Warren Counties.
** **NOTE**: Kentucky coal resource values are considered by some to be too high of a value.
Caution: coal reserve estimates affected by static terms like "today's technology" and "economically recoverable" may not apply tomorrow.

Eastern Kentucky Coal Resources, 2002

County	Original	Mined	Lost	Remaining
Bell	3,194.70	299.09	299.09	2,596.52
Boyd	630.68	19.93	19.93	590.82
Breathitt	4,112.20	206.09	206.09	3,700.02
Carter	501.96	18.61	18.61	464.74
Clay	1,536.11	61.42	61.42	1,413.27
Elliot	316.32	9.85	9.85	296.62
Floyd	4,168.08	453.55	453.55	3,260.98
Greenup	204.87	10.42	10.42	184.03
Harlan	7,881.12	894.43	894.43	6,092.26
Jackson	375.87	11.23	11.23	353.41
Johnson	1,419.44	95.78	95.78	1,227.88
Knott	4,385.10	304.83	304.83	3,775.44
Knox	1,381.93	74.34	74.34	1,233.25
Laurel	408.04	35.81	35.81	336.42
Lawrence	2,024.68	24.58	24.58	1,975.52
Lee	363.98	8.45	8.45	347.08
Leslie	3,554.65	249.43	249.43	3,055.79
Letcher	3,692.80	542.10	542.10	2,608.60
McCreary	444.97	55.34	55.34	334.29
Magoffin	1,969.10	54.85	54.85	1,859.40
Martin	3,319.97	376.01	376.01	2,567.95
Morgan	849.40	15.19	15.19	819.02
Owsley	574.14	9.83	9.83	554.48
Perry	3,596.70	569.59	569.59	2,457.52
Pike	11,391.70	1,363.38	1,363.38	8,664.94
Whitley	987.44	91.12	91.12	805.20
Wolfe	443.92	7.16	7.16	429.60
Other***	334.89	33.18	33.18	268.53
EKY Total	**64,064.76**	**5,895.59**	**5,895.59**	**52,273.58**

Original Coal Resources
Estimate (64.1 billion tons)

5.9 billion tons mined 1790-2002

5.9 billion tons lost due to mining 1790-2002

10.98 billion tons in DRB**

41.29 billion tons remaining, but not in DRB**

Source for DRB: U.S. DOE-EIA, U.S. Coal Reserves, 2002

** **NOTE**: Kentucky coal resource values are considered by some to be too high of a value. The Eastern Kentucky "DRB" value was increased but is still rejected by some as being too low.
*** **NOTE**: " Other" includes Clinton, Estill, Pulaski, Rockcastle, and Wayne Counties.

Sources: Smith and Brant (1980), Mined and Lost and Remaining Resources updated by the Kentucky Coal Council from Kentucky Division of Mines and Minerals Annual Reports.

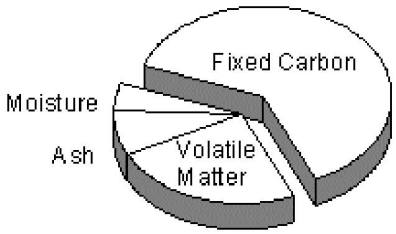
Coal Properties / Improvements

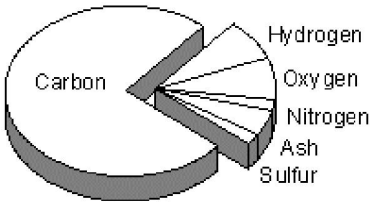
There are two different types of analyses used to determine the nature of bituminous coal: **Proximate and Ultimate analysis**.

Proximate Analysis

Determines (on an as-received basis):

- **Moisture content**
- **Volatile matter** (gases released when coal is heated).
- **Fixed carbon** (solid fuel left after the volatile matter is driven off).
- **Ash** (impurities consisting of silica, iron, alumina, and other incombustible matter).





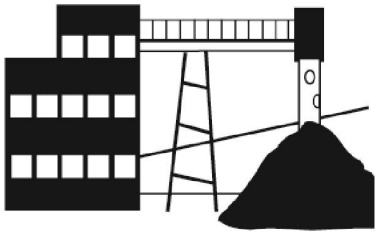
Ultimate Analysis

Determines the amount of carbon, hydrogen, oxygen, nitrogen, and sulfur.

- **Btu**—Heating value is determined in terms of Btu both on an as-received basis (including moisture) and on a dry basis.

Improving the Properties of Mined Coal

Kentucky coal is improved by the partial removal of the impurities—sulfur and ash. The cleaning process to remove impurities from the coal is often called *beneficiation, coal preparation,* or *coal washing.*



In general, coal cleaning is accomplished by separating and removing inorganic impurities from organic coal particles. The inorganic ash impurities are predominantly more dense than the coal particles. This property is generally the basis for separating the coal particles from the ash impurities.

Western Kentucky had 13,760 tons per hour of coal preparation design capacity at approximately 20 coal preparation plants during 2003. **Eastern Kentucky** had 46,345 tons per hour of coal preparation design capacity at approximately 68 coal preparation plants during 2003.

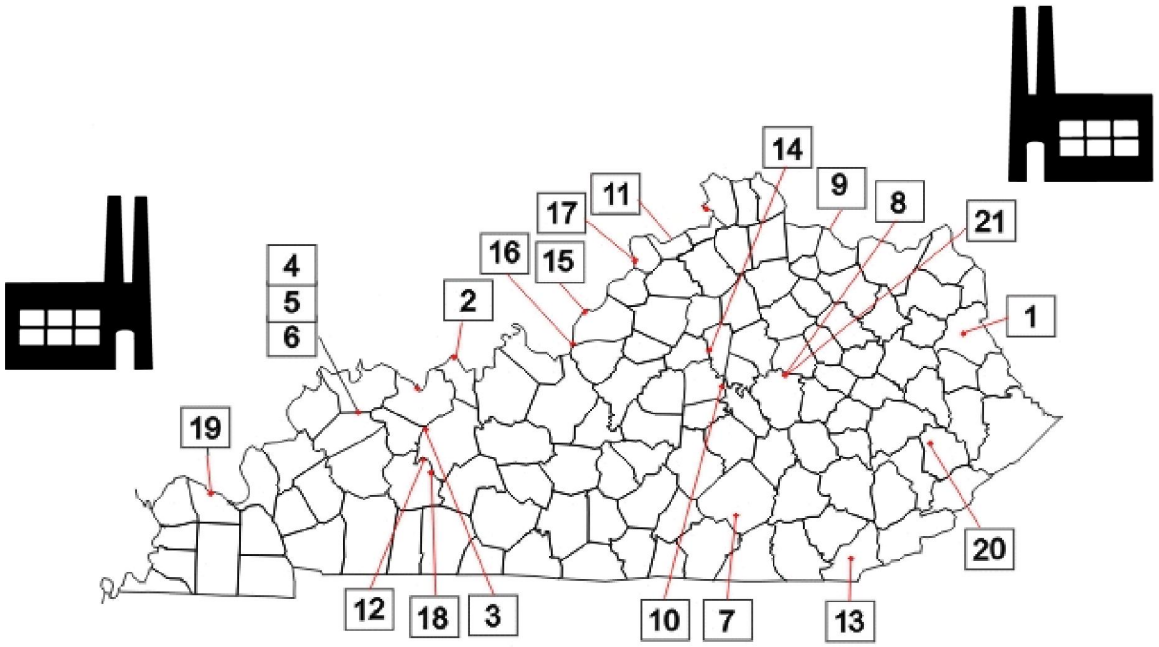
Each coal seam has a different washability characteristic. The range of improvement to a particular seam by mechanical washing varies from plant to plant and location to location.

In Western Kentucky, sulfur (inorganic sulfur) and ash are the two main impurities removed. Considering the seven principal mined seams in this area, 0.5% to 2.5% can be subtracted from the average sulfur content and 9% to 13% can be subtracted from the ash content after the coal washing process.

In Eastern Kentucky, coals with very high ash contents are washed. High ash content results from seam impurities, splits, or partings in the seam. In these seams the ash is the main impurity removed—10% to 15% can be subtracted from the ash content after the coal washing process and with only a slight reduction in the sulfur content.

Source: Kentucky Coal Council

Coal-Fired Power Plants



Note: Not all power plants offer tours on a regular basis.

Coal-Fired Power Plant		Plant/County	Phone	Age Group
American Electric Power	1	Big Sandy/Lawrence	606-686-2415,	all ages
Contact: Diana Frasher			Ext. 1133	
East Kentucky Power Co-oporation	7	Cooper/Pulaski	859-744-4812	5th grade
Contact: Belinda Stafford	8	Dale/Clark	Ext. 385	& up
	9	H.L. Spurlock/Mason		
Kentucky Utilities Company	10	Brown/Mercer	859-367-1105	6th grade
Contact: Cliff Feltham	11	Ghent/Carroll		& up
	12	Green River/Muhlenberg		
	13	Pineville/Bell		
	14	Tyrone/Woodford		
Kentucky Mountain Power	20	Ky. Mtn. Power*/Knott	606-251-3304	all ages
Contact: John Tate				
Kentucky Pioneer Energy	21	Pioneer IGCC*/Clark	513-621-0077	all ages
Contact: Mike Musulin				
Louisville Gas & Electric Co.	15	Cane Run/Jefferson	502-627-2713	5th grade & up
Contact: Sandy Gentry	16	Mill Creek/Jefferson		(others considered
	17	Trimble County/Trimble		upon request)
Tennessee Valley Authority	18	Paradise/Muhlenberg	270-476-3301	4th grade
Contact: Beverly Morehead	19	Shawnee/McCracken	270-575-8001	& up
Debby Abell				
Western Kentucky Energy	2	Coleman/Hancock	270-844-6004	3rd grade
Contact: Jennifer Headdy	3	D.B. Wilson/Ohio		& up
	4	Green/Webster		
	5	Henderson/Webster		
	6	Reid/Webster		

*New proposed power plant permitted in 2001

Electric Utility / Non-Utility

History of Electric Utility Deregulation, 2000—Impact on Coal

Traditionally made up of regulated monopolies serving prescribed state service areas, the U.S. electric utility industry may ultimately become a nationwide competitive electricity market. The expanded authority (Energy Policy Act, 1992) of the federal government to order utilities to wheel power from generators to wholesale buyers (municipalities and other utilities), has opened the U.S. electricity grid to competitive wholesale transactions. In 1996, Federal Energy Regulatory Commission (FERC) Order 888 addressed the issues of open access to encourage wholesale competition to the electric utility industry and FERC Order 889 required utilities to share information about available transmission capacity.

While initial efforts to form a more competitive electric market in some states, such as California, have resulted in disaster during periods of both "under-supply" and "over-supply," other states have greatly intensified pressure to keep generating costs low. Coal-fired generating plants close to major power markets will be well positioned to compete with low-cost power. As new generating plants are needed in the coming decade and beyond, coal's ability to capture this new market will be aided by its low and stable cost, by expected increases in the cost of natural gas, and by increasingly efficient and environmentally beneficial Clean Coal Technologies.

U.S. Electric Power Plant Shipments

Kentucky shipped 84 million tons of steam coal to U.S. electric power plants in 2002.

Kentucky shipped 45 million tons less steam coal to the U.S. electric utilities than in 1990.

Kentucky's share of the U.S. steam coal market declined to 9.5% in 2002, compared to 23.2% in 1973.

Wyoming increased steam coal shipments by 184 million tons since 1990, increasing its market share to 40.7% of the U.S. electric utility steam coal market, compared to 3.5% in 1973.

	Market Share %		
Year	KY	WV	WY
1973	23.2	12.6	3.5
1974	23.4	10.8	4.7
1975	23.5	10.2	5.0
1976	22.5	9.8	5.7
1977	22.4	9.0	8.6
1978	20.7	8.0	11.2
1979	19.9	8.9	12.4
1980	18.9	8.9	15.1
1981	19.4	8.8	17.5
1982	17.7	10.6	17.0
1983	16.1	11.1	18.1
1984	17.4	10.8	18.6
1985	16.6	9.7	20.7
1986	16.7	10.6	20.1
1987	17.2	11.2	19.8
1988	15.9	11.0	21.7
1989	16.0	11.1	22.0
1990	16.4	11.3	22.4
1991	14.8	11.0	24.0
1992	15.1	10.9	23.4
1993	15.6	9.8	26.3
1994	15.2	11.1	27.2
1995	14.6	11.0	30.7
1996	13.6	11.8	31.2
1997	13.9	11.8	30.7
1998 *	13.0	11.4	32.8
*Deregulation began in 1998			
1999	12.2	11.2	34.8
2000	11.7	11.6	35.9
2001	10.5	11.9	37.5
2002	9.5	11.4	40.7

Source: U.S. DOE/EIA—Cost and Quality for Fuels for Electric Utility Plants, 1973-1998, Coal Industry Annual, 1999-2002.

BLACKOUT

August 14, 2003

Utility experts say the national system of electric transmission lines, known as the grid, is being asked to do more than it was designed to do.

Trends that could lead to power failures:

1. More electric power transactions over longer distances as a result of deregulation.
2. Increased competition producing less coordination among utilities.
3. Independent "merchant power plants" being added to the grid.
4. The creation of Regional Transmission Organizations.
5. Staff reductions by investor-owned utilities.

Source: Kentucky Living Magazine, November 2003.

Electricity Costs

Kentucky's average electricity costs are lower than all other states. Average electricity costs in Kentucky were 4.3 cents per kilowatt-hour during 2002, **the lowest** in the United States for the **second consecutive year**. Some states such as California and several New England states have average electricity costs that are two to two-and-one-half times the Kentucky cost. All Kentuckians enjoy the many advantages of low-cost power due to Kentucky coal.

Average Revenue per KWh for All Sectors of Consumers by State, 2002

U.S. Average Revenue per KWh is 7.21 Cents

STATE	CENTS PER KWh
KENTUCKY	**4.26**
WYOMING	4.68
WEST VIRGINIA	5.11
INDIANA	5.34
UTAH	5.39
NORTH DAKOTA	5.45
NEBRASKA	5.55
IDAHO	5.58
OKLAHOMA	5.59
ARKANSAS	5.61
ALABAMA	5.71
TENNESSEE	5.72
MONTANA	5.75
WASHINGTON	5.80
SOUTH CAROLINA	5.83
MINNESOTA	5.84
LOUISIANA	5.99
COLORADO	6.00
IOWA	6.01
MISSOURI	6.09
MARYLAND	6.21
VIRGINIA	6.23
GEORGIA	6.24
MISSISSIPPI	6.24
SOUTH DAKOTA	6.26
WISCONSIN	6.28
KANSAS	6.31
OREGON	6.32
TEXAS	6.62
OHIO	6.66
NEW MEXICO	6.73
NORTH CAROLINA	6.74
MICHIGAN	6.92
ILLINOIS	6.97
DELAWARE	7.05
ARIZONA	7.21
FLORIDA	7.31
DISTRICT OF COLUMBIA	7.37
PENNSYLVANIA	8.01
NEVADA	8.42
RHODE ISLAND	9.19
NEW JERSEY	9.31
CONNECTICUT	9.73
MASSACHUSETTS	10.18
ALASKA	10.46
NEW HAMPSHIRE	10.49
VERMONT	10.87
NEW YORK	11.29
MAINE	11.36
CALIFORNIA	12.50
HAWAII	13.39

KWh = Kilowatt-hour

Note: The average revenue per kilowatt-hour of electricity sold is calculated by dividing revenue* by sales.

* Includes energy charges, demand charges, consumer service charges, environmental surcharges, fuel adjustments, and other miscellaneous charges. Taxes assessed on the consumer, "pass through" taxes, are not recorded in the operating revenues of the utility and are not included; however, taxes assessed on the utility are included in the electric utility's operating revenue.

Source: U.S. DOE—Energy Information Administration, Electric Sales and Revenue, 2002

Information Assistance

Visit our educational web site at www.coaleducation.org

Welcome to the Kentucky Coal Education Web Site

- Classroom Lesson Plans
- Coal Education Resources
- Coal Mining History
- Coal Related Issues Info
- Modern Mining Technology
- Glossary of Terms
- Kentucky Coal and the Regulatory Authority Agencies of the Coal Industry
- Kentucky Coal Facts Book
- Kentucky Coal Tree
- Question and Answer Forum
- Technical Abstracts of Coal Related Periodicals
- Mining T.V.

Kentucky coal data, information, and referral assistance to government, private organizations, and individuals are available from the following:

Kentucky Commerce Cabinet **502/564-4270**
Capital Plaza Tower, 24th Floor, Frankfort, Kentucky 40601
Jim Host, Secretary

Kentucky Coal Council **502/564-9556**
William Higginbotham, Executive Director Fax 502/564-9555
500 Mero Street, Capital Plaza Tower—Rm. 1216, Frankfort, Kentucky 40601 bill.higginbotham@ky.gov

Dennis McCully, Western Kentucky Coal Representative **270/824-7543**
625 Hospital Drive, Room 205, Madisonville, Kentucky 42431 wkkcmec@vci.net

Kentucky Coal Association **859/233-4743**
340 South Broadway, Suite # 100 Fax 859/233-4745
Lexington, Kentucky 40508 (www.kentuckycoal.org)
Bill K. Caylor, president bcaylor@miningusa.com
William I. (Bill) Marcum, vice-president wmarcum@miningusa.com

Kentucky Geological Survey (KGS) **859/257-3896**
University of Kentucky—Publication Section
228 Mining and Mineral Resources, Bldg. (www.uky.edu/kgs/home.htm)
Lexington, Kentucky 40506

Teacher Workshops

Kentucky NEED **866/736-8941**
Karen Reagor, Executive Director Fax 866/736-8942
P. O. Box 176055, Covington, Kentucky 41017 (www.need.org/states/kentucky)
e-mail: kreagor@need.org

Coal Teaching Materials

American Coal Foundation
101 Constitution Avenue, NW, Suite 525 E
Washington, D.C. 20001
202/463-9785—Fax 202/463-9786
(www.teachcoal.org)

KET, The Kentucky Network
(www.ket.org/trips/coal/)

Kentucky Geological Survey (KGS)
(www.uky.edu/kgs/home.htm)

University of Kentucky
Center for Applied Energy Research (CAER)
(www.caer.uky.edu)

U. S. Department of Energy
(www.eia.doe.gov/kids)

Center for Energy and Economic Development
(www.ceednet.org)

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