

Kentucky Energy Profile 2014

Kentucky Department for Energy Development & Independence

Kentucky Energy & Environment Cabinet



Executive Summary

The Commonwealth of Kentucky remains a leading producer and consumer of energy; however, Kentucky's energy landscape is rapidly changing. The Kentucky Energy and Environment Cabinet (EEC) offers the Kentucky Energy Profile 2014 as an overview of energy consumption and production within the state.

Energy production in Kentucky is declining. Kentucky coal production, the Commonwealth's principal means of energy production, peaked at 173 million tons annually in 1990 and has declined by 54 percent through 2013 to 80.5 million tons—the lowest level since 1963. The retirement of coal-fired power plants across the United States has significantly reduced demand for Kentucky coal. Coal production in eastern Kentucky has declined by 70 percent since peaking in 1990. As coal mines have closed, employment at Kentucky coal mines has declined to 11,885 in 2013. Production in western Kentucky, where thicker, more productive coal seams yield cheaper coal, is stable and was greater than in eastern Kentucky in 2013 for the first time since 1911. However, natural gas production in Kentucky, and nationally, is increasing: Kentucky became a net-exporter of natural gas for the first time in 2012. In 2013, Kentucky produced a record 300 billion cubic feet, an increase of 140 percent from 2011.

In 2013, more than 92 percent of the state's electricity was generated at Kentucky's coal-fired power plants. However, due to changes in federal environmental regulations, aging coal generators, and low natural gas prices, Kentucky will become increasingly dependent upon natural gas for future electricity generation. Kentucky has limited, but growing, opportunities to expand renewable energy production.

Energy efficiency also holds significant potential to mitigate future electricity demand. Although Kentucky maintains electricity prices that are among the lowest in the United States, electricity expenditures as a percentage of household income are more significant in poorer rural and urban areas. The state is also home to more than 800,000 people living below the poverty level. Thirteen percent of Kentucky families live in manufactured homes, which are cheaper to purchase but more costly over the longer-term due to energy costs.

Historically, Kentucky's domestic supply of coal has provided the Commonwealth both low-cost electricity and energy security. Kentucky's low electricity prices have, in turn, fostered one of the most electricity-intensive manufacturing economies in the United States. Manufacturing remains Kentucky's largest source of revenue and a leading source of employment. In 2013, 43 percent of the energy and electricity consumed in Kentucky went to manufacturing processes. In addition to large flagship manufacturers, such as General Electric, Toyota, and Ford, who have located in Kentucky—in part due to low electricity costs—Kentucky is also home to particularly energy-intensive manufacturing processes including; aluminum smelting, iron and steel mills, paper mills, chemical production, and glass manufacturing.

The data in this publication were aggregated from public sources including the following federal agencies: the Department of Energy (DOE) Energy Information Administration (EIA) and National Renewable Energy Laboratory (NREL); the Environmental Protection Agency (EPA); the Department of Commerce (DOC) Bureau of Economic Analysis (BEA) and Census Bureau; the Department of Agriculture; the National Oceanic and Atmospheric Administration (NOAA); as well as the Department of Labor (DOL) Bureau of Labor Statistics (BLS) and Mine Safety Health Administration (MSHA). Numerous Kentucky state agencies and partners also contributed data to this report; including; the Kentucky Public Service Commission (PSC); University of Kentucky (UK); and Kentucky Geological Survey (KGS). Much of the data in this report are available at: <http://energy.ky.gov/Programs/Pages/data.aspx>

We hope that you will find this report informative and useful. We welcome your questions and feedback. Please direct all inquiries to Aron Patrick (Aron.Patrick@ky.gov) or Adam Blandford (Adam.Blandford@ky.gov) or by telephone at 502-564-7192.

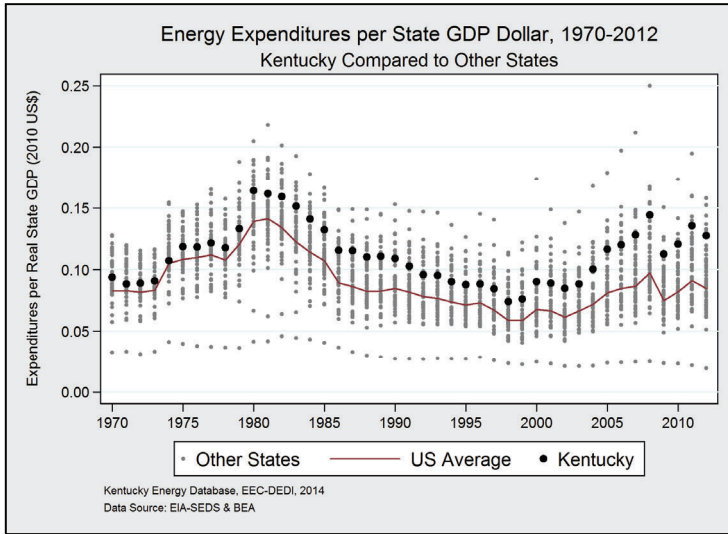
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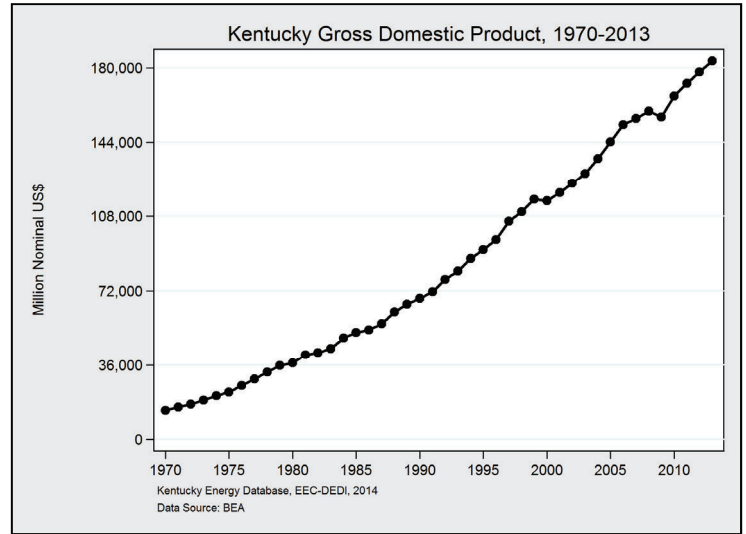
*For more detailed information on coal production in Kentucky, please reference

Kentucky Coal Facts, which is available online at: <http://energy.ky.gov/Pages/CoalFacts.aspx>

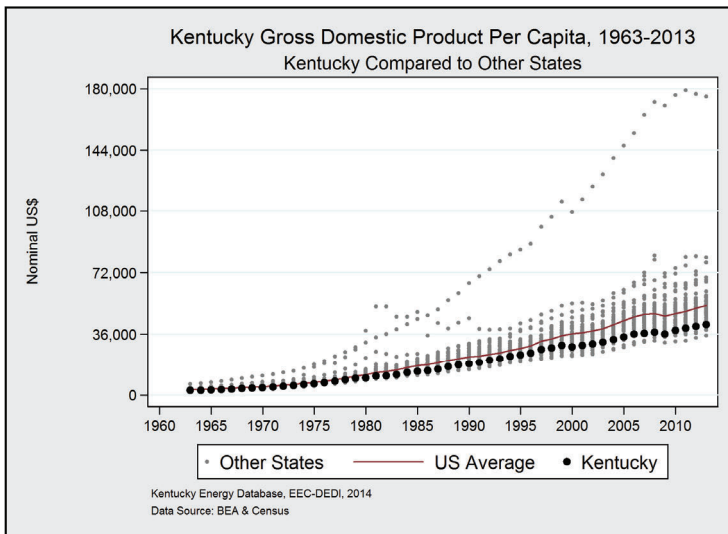
General Statistics



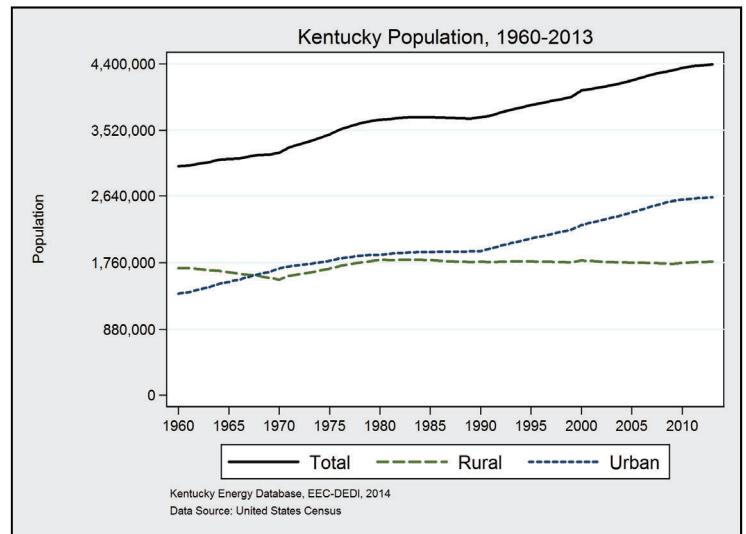
In 2012, on average \$0.13 was spent in Kentucky on energy to produce one dollar of state Gross Domestic Product (GDP). Kentucky ranked tenth in energy intensity of GDP in 2012, and decreased its intensity by 6 percent from 2011.



In 2013, the Gross Domestic Product of Kentucky was \$183 billion, an increase of 3 percent from 2012, or \$5.4 billion. Relative to other states, Kentucky ranks 28th in GDP. Since 1970, the inflation adjusted GDP of Kentucky has had a constant annual growth rate of 6.3 percent.

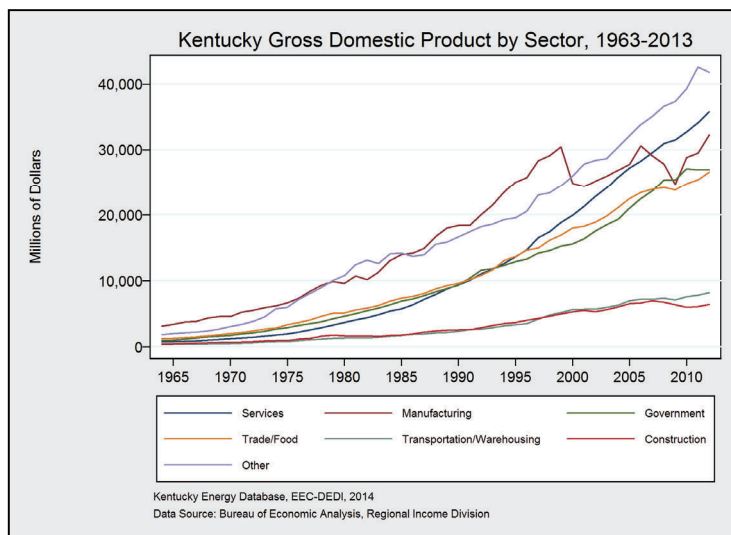


In 2013, Kentucky's GDP per capita was \$41,720, an increase of 2.7 percent from 2012, or \$1,092 per person. Kentucky ranked 43rd in the nation in terms of GDP per capita and below the national average of \$52,831 in 2013.

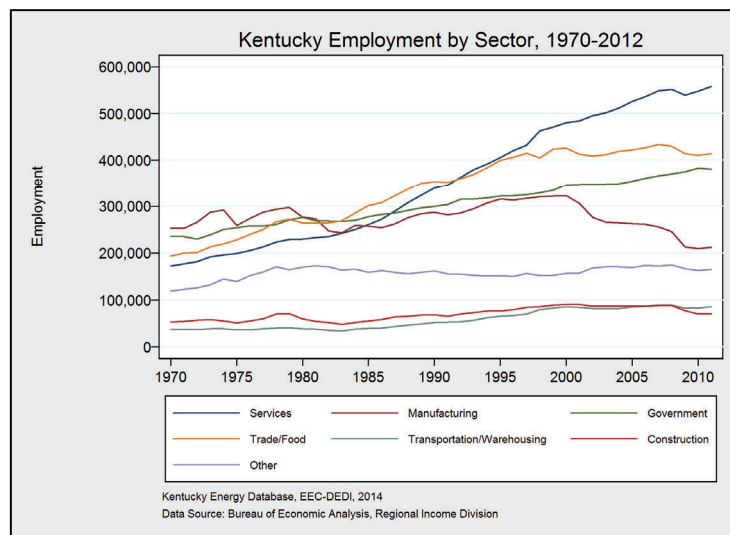


In 2013, Kentucky's population was approximately 4.4 million people, an increase of 15 thousand people, or 0.3 percent since 2012. From 1960 to 2013, Kentucky's urban population has grown by 94 percent while its rural population increased by 5.3 percent, a constant annual growth rate of 1.25 and 0.1 percent, respectively. Whereas Kentucky was 45 percent urban in 1960, it was 60 percent urban in 2013.

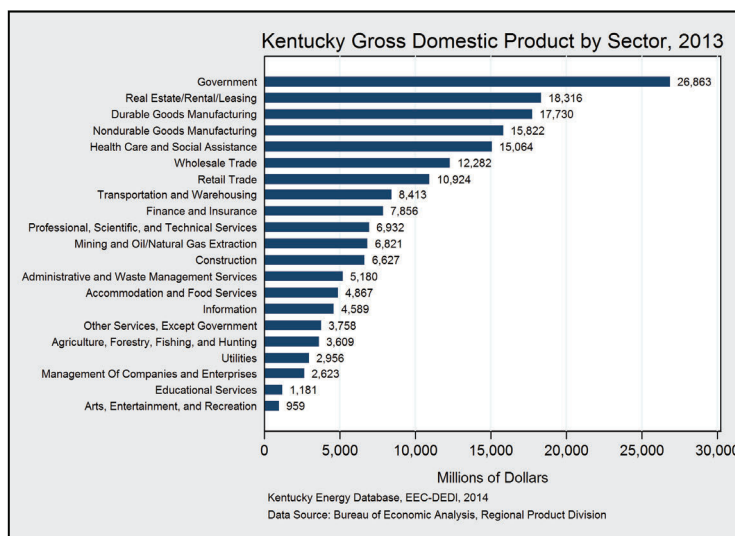
Kentucky's Economy



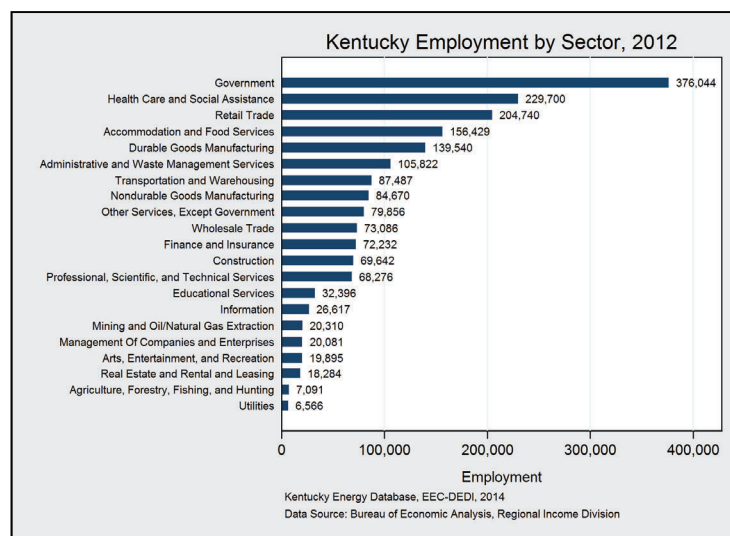
GDP from most sectors has risen gradually in the last 50 years, with output from the service sector rising the most. Manufacturing output has been relatively more volatile than that from other sectors, with peaks of output in 1999 and 2006 followed by significant decreases thereafter.



With the exception of manufacturing, employment in all sectors of the Kentucky economy remained stable until 2008, when most sectors experienced decreases in employment. Manufacturing employment, at 224 thousand, is 44 percent below peak manufacturing employment of 323 thousand in 2000.

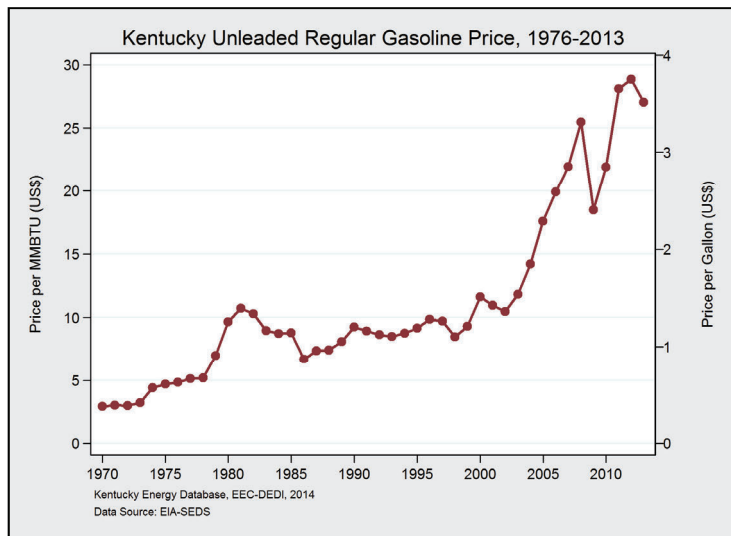


Government has the largest portion of state GDP with 15 percent of GDP, followed by real estate with approximately 10 percent. Durable and nondurable manufacturing contribute 10 and 9 percent, respectively. The graph above disaggregated major industrial sectors and portrays their portion of GDP, defined as the value added by sector or the summation of employee compensation, gross operating surplus, and taxes (minus subsidies).



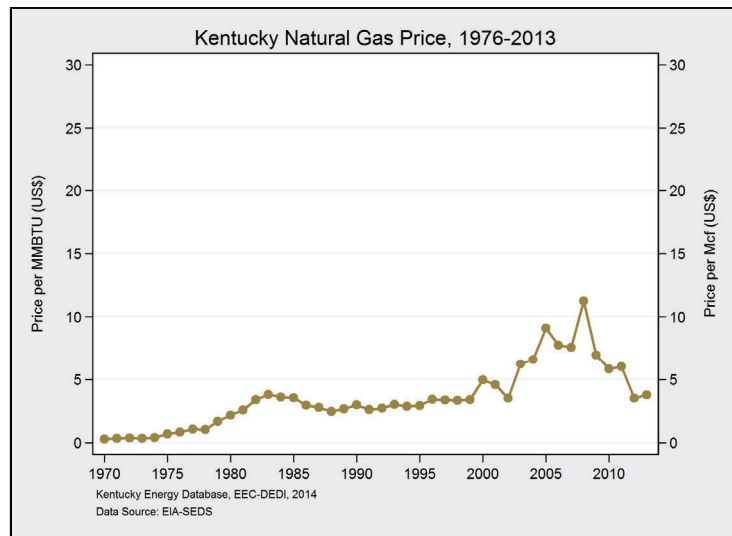
In 2012, the public sector was the single largest employer in the Commonwealth, 75 percent from state and local government, 15 percent from the military, and 10 percent from federal civilian employment. Government employment was approximately 20 percent of total employment, healthcare was 12 percent, and retail trade 11 percent. Employment is defined as the average number of full-time and part-time jobs where wages or salaries are paid.

Kentucky Commodity Prices



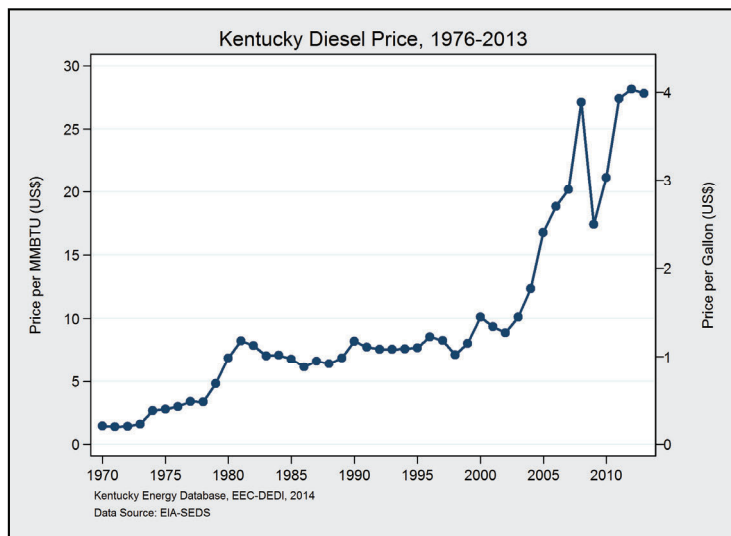
Fuel Type	U.S.\$/MMBTU	U.S.\$/Gallon
Gasoline	28.86	3.48

The average price of gasoline in Kentucky in 2013 was \$3.48 per gallon, a 3 percent decrease in the price of gasoline compared with 2012.



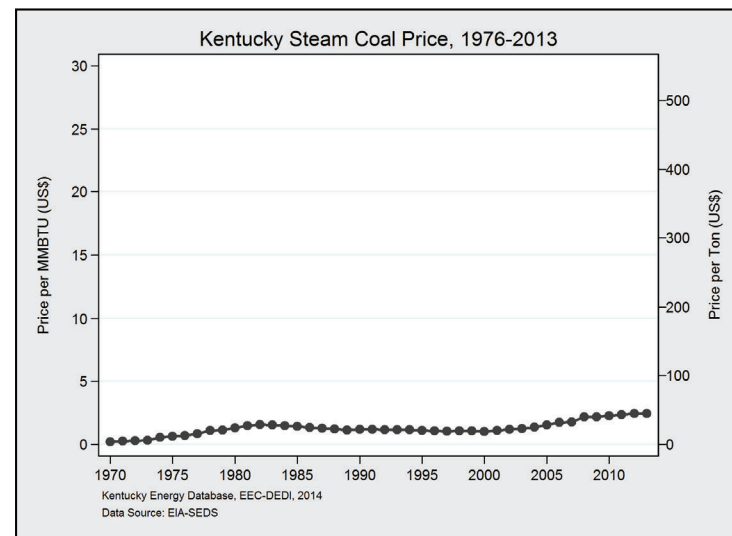
Fuel Type	U.S.\$/MMBTU	U.S.\$/Mcf
Natural Gas	3.77	4.47

The average citygate price of natural gas in Kentucky in 2013 was \$4.47 per thousand cubic feet, a 7 percent increase in the price of natural gas compared with 2012.



Fuel Type	U.S.\$/MMBTU	U.S.\$/Gallon
Diesel	28.16	3.86

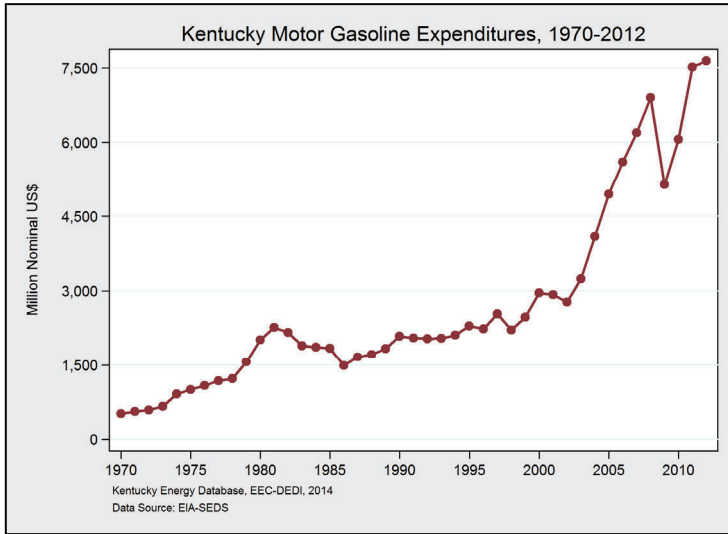
The average retail sales price of diesel in Kentucky in 2013 was \$3.86 per gallon, a 1 percent decrease in the price of diesel compared with 2012.



Fuel Type	U.S.\$/MMBTU	U.S.\$/Ton
Coal	2.36	55.18

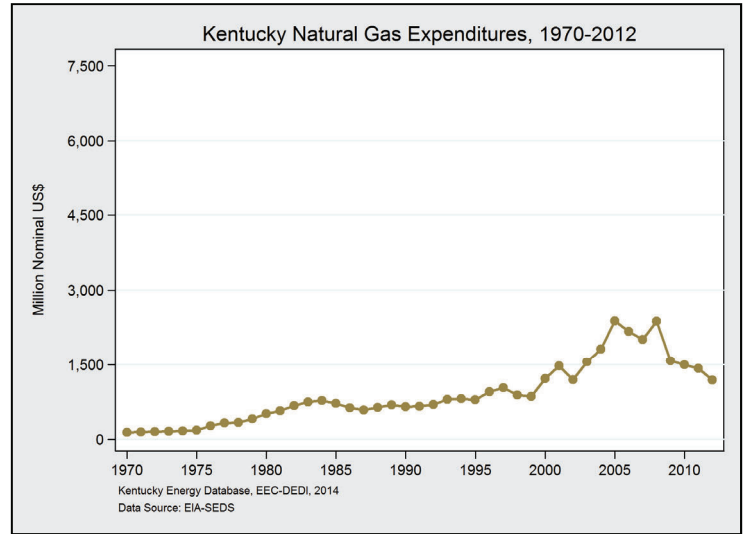
The average price of steam coal in Kentucky in 2013 was \$54.83 per ton, a 4 percent decrease in the price of steam coal compared with 2012.

Kentucky Commodity Expenditures



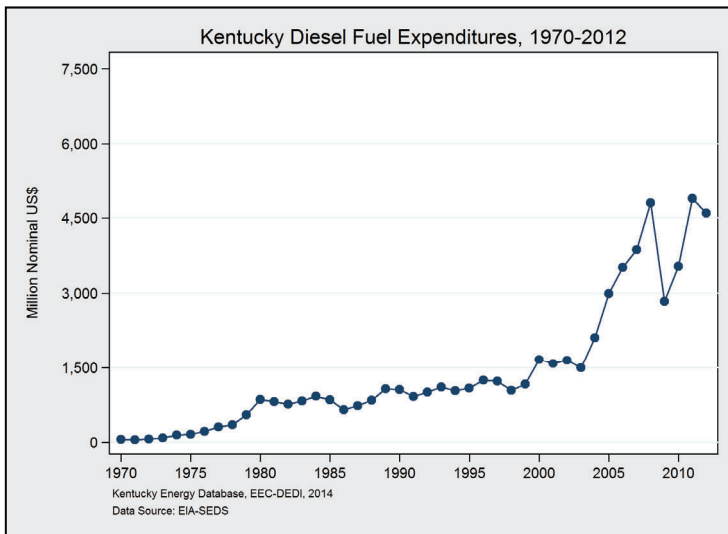
Fuel Type	Million U.S.\$	% of Total
Gasoline	7,643	34%

The sum of unleaded gasoline expenditures in Kentucky was approximately \$7.6 billion in 2012, a 2 percent increase in gasoline expenditures compared with 2011, and accounted for 34 percent of energy expenditures in the state.



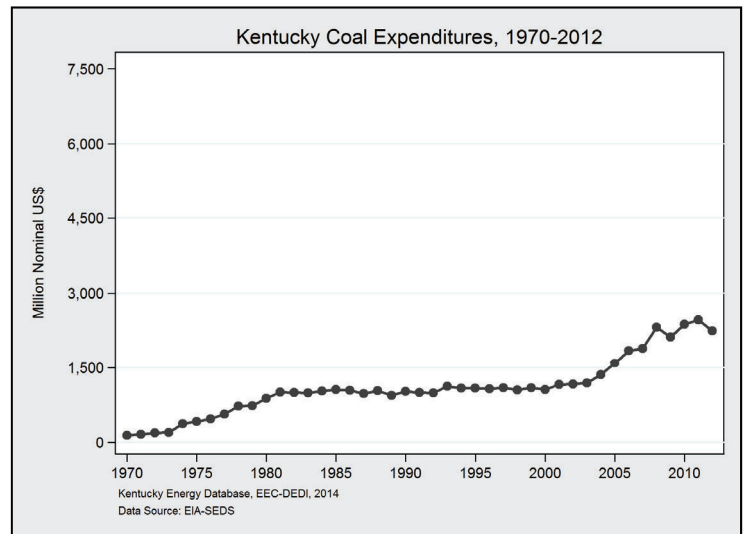
Fuel Type	Million U.S.\$	% of Total
Natural Gas	1,191	5%

Total natural gas expenditures on Kentucky were approximately \$1.2 billion in 2012, a 16 percent decrease in natural gas expenditures compared with 2011, and accounted for 5 percent of energy expenditures in the state.



Fuel Type	Million U.S.\$	% of Total
Diesel	4,594	21%

Approximately \$4.6 billion was spent on diesel in Kentucky in 2012, a 6 percent decrease in diesel expenditures compared with 2011, and accounted for 21 percent of energy expenditures in the state.

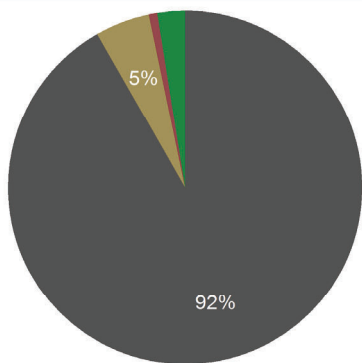


Fuel Type	Million U.S.\$	% of Total
Coal	2,249	10%

The sum of coal expenditures in Kentucky was approximately \$2.3 billion in 2012. Spending on coal decreased by 9 percent from 2011 and accounted for 10 percent of energy expenditures in the state.

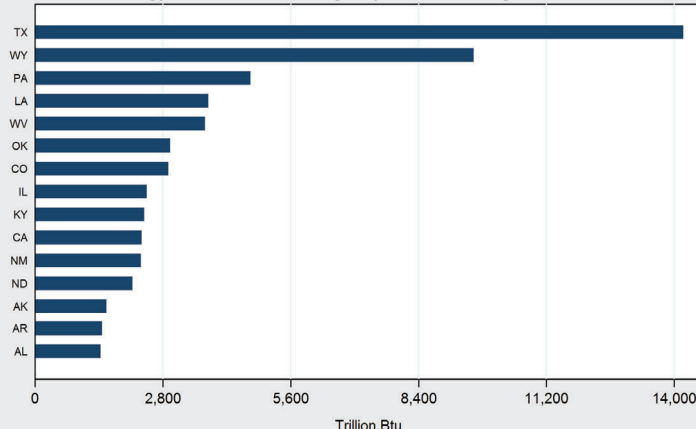
Kentucky Energy Production

Kentucky Energy Production, 2012
Energy Production by Fuel Type (%)



Kentucky Energy Database, EEC-DEDI, 2014

Energy Production Among Top 15 Producing States, 2012



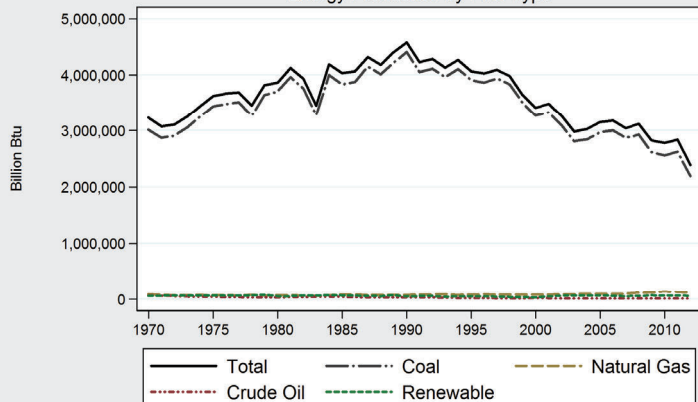
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Fuel Type	Billion BTU	Percentage
Total	2,390,810	100%
Coal	2,193,276	92%
Natural Gas	119,143	5%
Renewable	59,843	3%
Crude Oil	18,548	<1%

State	Quadrillion BTU	Rank
Texas	14,200	1st
Kentucky	2,391	9th

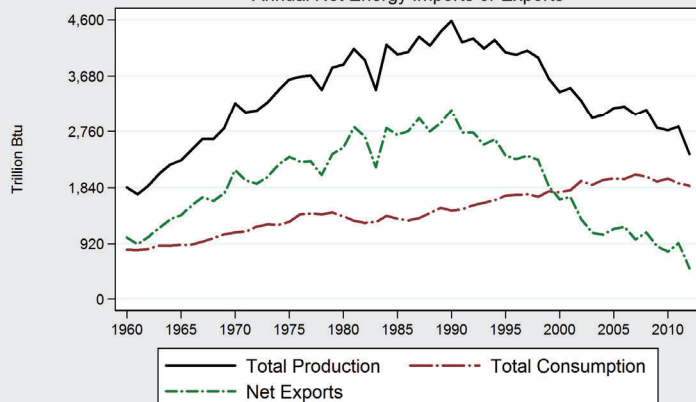
Since 2011, Kentucky has been supplanted in total energy production by Illinois, Colorado, and Oklahoma. Coal production has decreased in Kentucky, increased in Illinois and Colorado, and natural gas production has increased in Colorado and Oklahoma.

Kentucky Energy Production, 1970-2012
Energy Production by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Energy Consumption & Production, 1960-2012
Annual Net Energy Imports or Exports



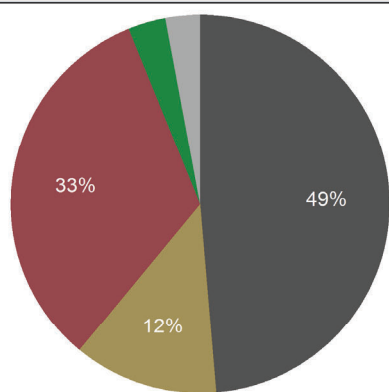
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

As the third largest coal producer in the nation, the vast majority of energy production in Kentucky is related to the extraction of coal. In 2012, Kentucky produced 2.39 Quadrillion Btu of energy, a 16 percent decrease in energy production compared with 2011. Of this amount, coal accounted for 92 percent of all energy production in Kentucky in 2012. Natural gas, renewable resources, and crude oil comprised the remaining 8 percent of energy production in 2012.

Kentucky has historically been a net exporter of energy and coal production has been by far the largest source of energy production in Kentucky. As a result, the trend in coal production in Kentucky has driven the trend in overall energy production. However, with decreasing coal production and stagnant energy demand, Kentucky's position as an energy exporter has been declining since 1990.

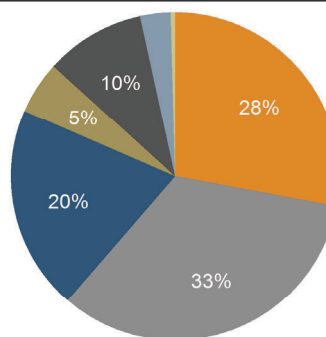
Kentucky Energy Consumption

Kentucky Energy Consumption by Fuel, 2012



Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Energy Expenditures, 2012
Energy Expenditures by Fuel Type (%)



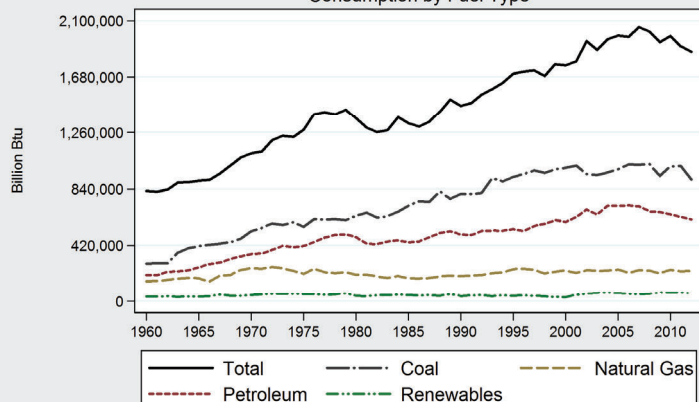
Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Billion BTU	Percentage
Total	1,870,604	100%
Coal	909,704	48.6%
Petroleum	614,418	32.8%
Natural Gas	231,329	12.4%
Renewables	60,333	3.2%
All Other	54,820	2.9%

Fuel Type*	Million U.S.\$	Percentage
Total	22,447	100%
Gasoline	7,643	33%
Electricity	6,378	28%
Diesel	4,594	20%
Coal	2,249	10%
Natural Gas	1,191	5%

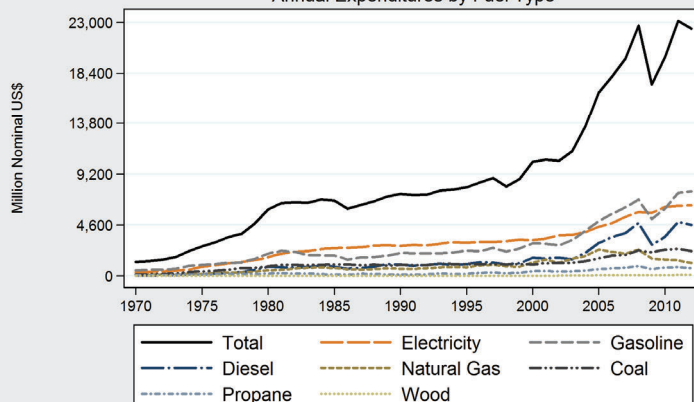
*Only top five sources listed

Kentucky Energy Consumption, 1960-2012
Consumption by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Energy Expenditures, 1970-2012
Annual Expenditures by Fuel Type



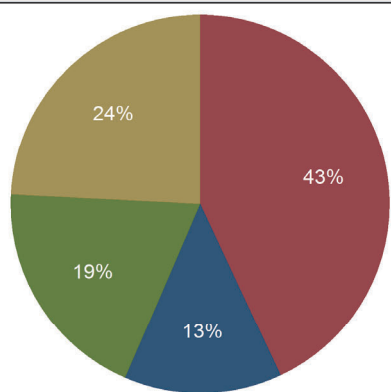
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

During 2012, the economy of Kentucky consumed approximately 1.87 Quadrillion Btu of energy, a decrease of 2 percent compared with 2011. Coal remained Kentucky's primary energy source, providing 48.6 percent of the state's energy requirements, of which 97 percent was used to generate electricity. Petroleum products were the second largest source of energy consumption at 33 percent. The remainder of energy consumption was supplied by natural gas (13 percent) and renewable energy sources (3 percent).

In 2012, more than \$22.5 billion was spent on energy commodities and energy consumption in Kentucky, a 3 percent decrease in energy expenditures compared with 2011. During the year, gasoline was 34 percent of energy expenditures in Kentucky and electricity was 28 percent. Diesel was the next largest concentration of energy expenditures in 2012 at 21 percent. Coal and natural gas consumption together accounted for approximately 15 percent of energy expenditures.

Kentucky Energy Consumption

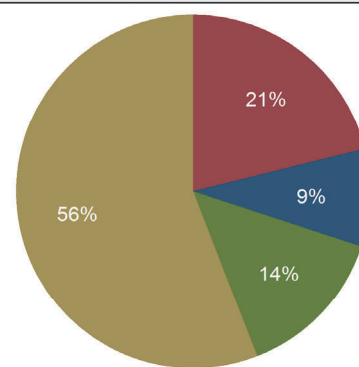
Kentucky Energy Consumption by Sector, 2012



Industrial Commercial
Residential Transportation

Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Energy Expenditures, 2012
Energy Expenditures by Sector (%)



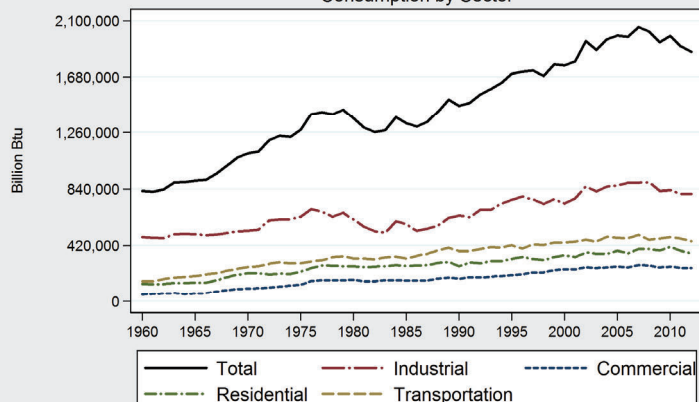
Industrial Commercial
Residential Transportation

Kentucky Energy Database, EEC-DEDI, 2014

Sector	Billion BTU	Percentage
Total	1,870,604	100%
Industrial	804,621	43%
Transportation	252,253	24%
Residential	361,324	19%
Commercial	452,406	13%

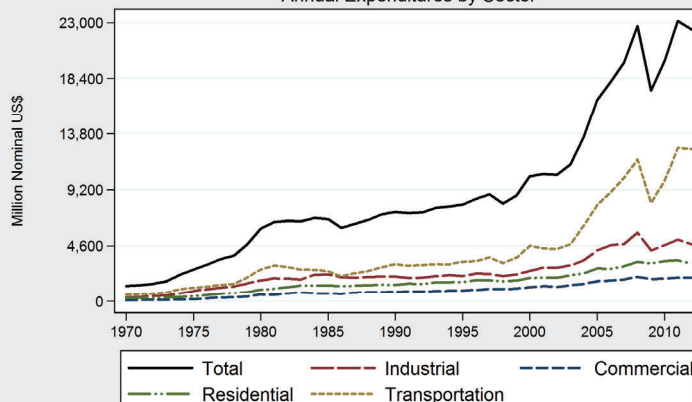
Sector	Million U.S.\$	Percentage
Total	22,448	100%
Transportation	12,550	56%
Industrial	4,744	21%
Residential	3,154	14%
Commercial	2,000	9%

Kentucky Energy Consumption, 1960-2012
Consumption by Sector



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Energy Expenditures, 1970-2012
Annual Expenditures by Sector

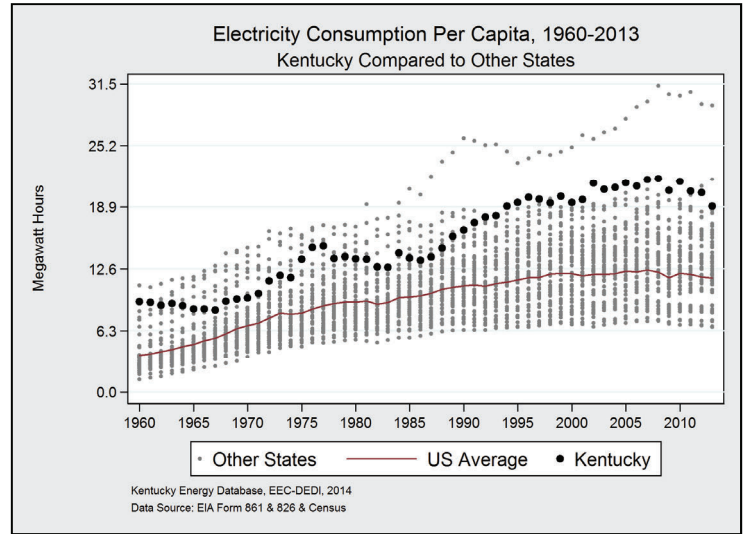
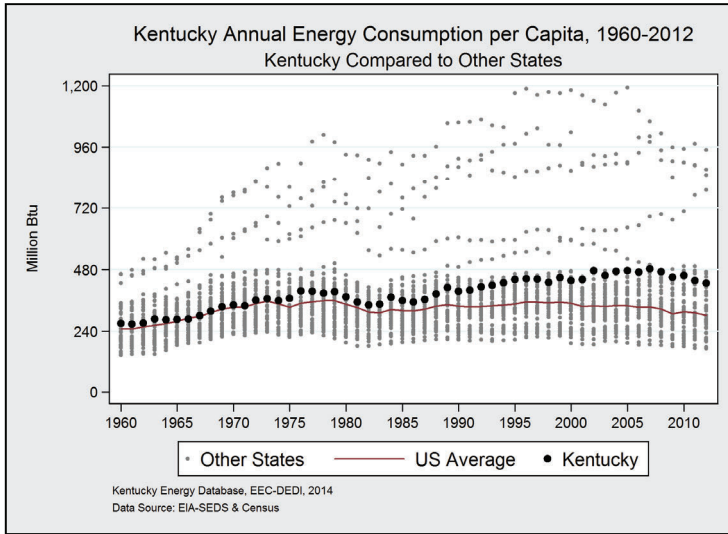


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

During 2012, the industrial sector of Kentucky was the largest consumer of energy in the state, 43 percent of energy consumption. The industrial sector of Kentucky remains proportionally larger than the national average, which was 33 percent in 2012. The transportation sector was the next largest consumer of energy, representing 24 percent of total energy demand, followed by the residential sector at 19 percent. The commercial sector accounted for 13 percent of energy consumption in 2012.

Despite being the second-largest consumer of energy in 2012, the Kentucky transportation sector represented the majority of energy expenditures in the state during the year. \$12.6 billion was spent in 2012 in the transportation sector—mostly for the consumption of gasoline and diesel. The industrial sector spent \$4.7 billion for various energy commodities, while the residential and commercial sectors spent \$3.2 billion and \$2.0 billion, respectively.

Kentucky Energy Intensity

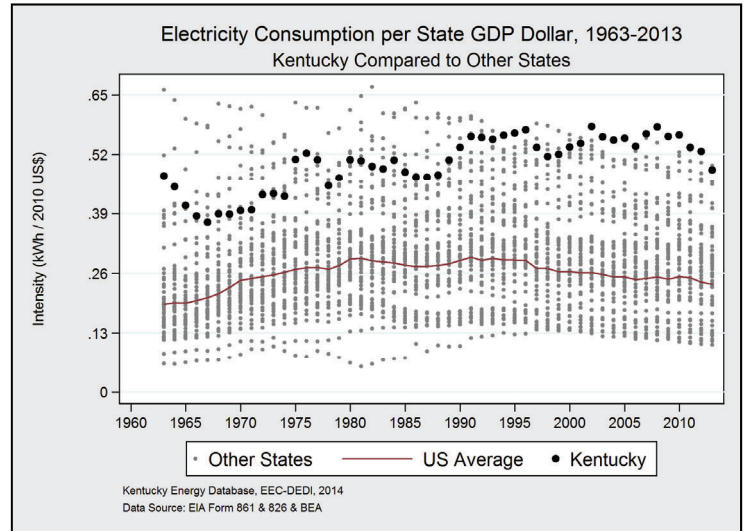
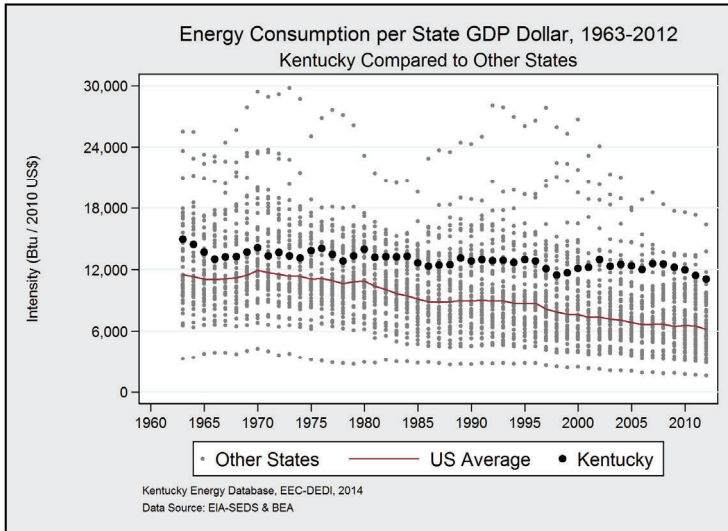


State	MMBtu per Capita	Rank
Wyoming	949	1st
Kentucky	427	9th
U.S. Average	303	-
Rhode Island	173	50th

In 2012, Kentucky ranked ninth in terms of total energy consumption per capita, a decrease of 2.4 percent compared with 2011.

State	MWh per Capita	Rank
Wyoming	29.5	1st
Kentucky	20.3	3rd
U.S. Average	11.8	-
California	6.8	50th

In 2013, Kentucky ranked third in terms of total electricity consumption per capita. Total electricity consumption per capita decreased by 7 percent compared with 2012.



State	Btu/\$U.S. GDP	Rank
Louisiana	16,372	1st
Kentucky	11,067	6th
U.S. Average	6,197	-
New York	2,888	50th

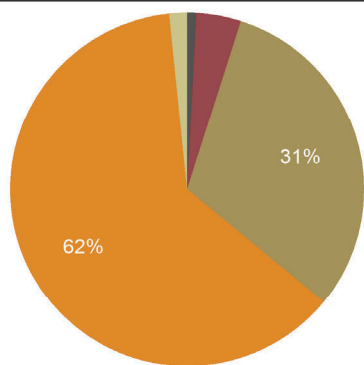
In 2012, Kentucky ranked sixth in terms of total energy consumption per dollar of state GDP. Total energy intensity decreased by 3 percent compared with 2011.

State	kWh/\$U.S. GDP	Rank
Mississippi	.50	1st
Kentucky	.49	3rd
U.S. Average	.24	-
Alaska	.11	50th

In 2013, Kentucky had the third most electricity-intensive economy in the United States, and total electricity intensity decreased by 8 percent compared with 2012.

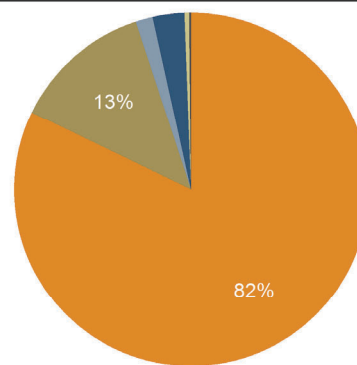
Commercial Energy Consumption

Kentucky Commercial Energy Consumption, 2012
Consumption by Fuel Type (%)



Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Commercial Sector Energy Expenditures, 2012
Expenditures by Fuel Type (%)

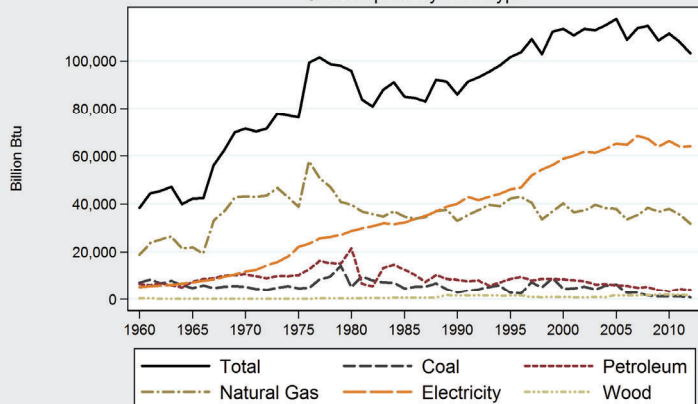


Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Billion BTU	Percentage
Total Net*	103,278	100%
Electricity	63,995	62%
Natural Gas	31,734	31%
Petroleum	4,193	4%
Wood	1,648	2%
Coal	855	<1%

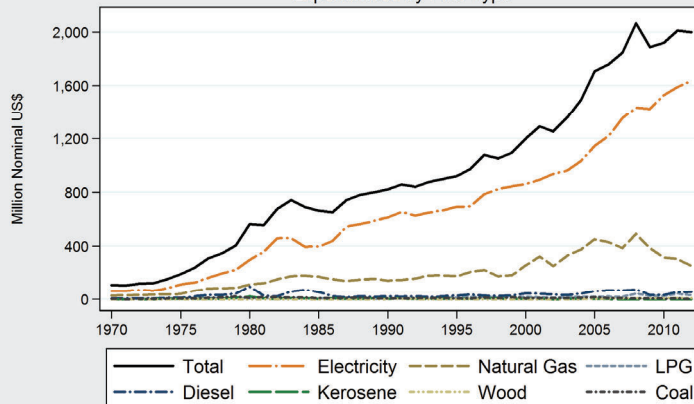
Fuel Type	Million U.S.\$	Percentage
Total	2,000	100%
Electricity	1,637	82%
Natural Gas	255	13%
Diesel	58	3%
Liquid Propane Gas	32	2%
Wood	8	<1%

Kentucky Commercial Energy Consumption, 1960-2012
Consumption by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Commercial Sector Energy Expenditures, 1970-2012
Expenditures by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

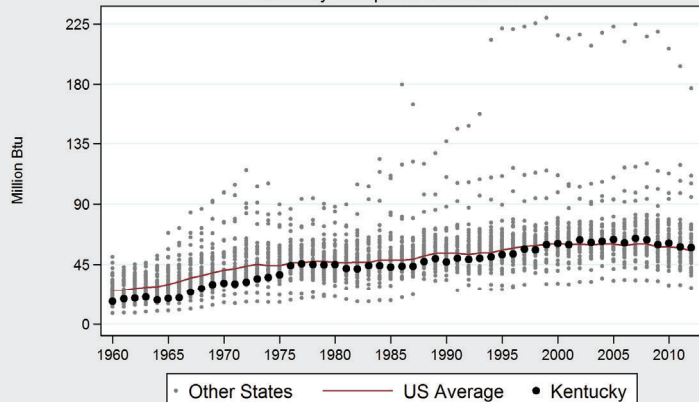
In 2012, the commercial sector in Kentucky consumed 103,278 billion Btu of energy, a 4 percent decrease in net commercial energy consumption compared with 2011. Electricity constituted 62 percent of commercial energy consumption, followed by natural gas at 31 percent. Other commodities such as petroleum products, wood, coal, and ethanol accounted for approximately 7 percent of commercial energy consumption in 2012.

*Net energy consumption excludes energy losses associated with electricity transmission.

In 2012, the commercial sector in Kentucky spent more than \$2 billion on energy commodities and energy consumption—a modest decrease in commercial energy expenditures compared with 2011. Electricity was the largest component of expenditures, at 82 percent of commercial energy expenditures. Natural gas was 13 percent of commercial energy expenditures. Propane, wood, kerosene, and coal accounted for the remainder of commercial energy expenditures in 2012.

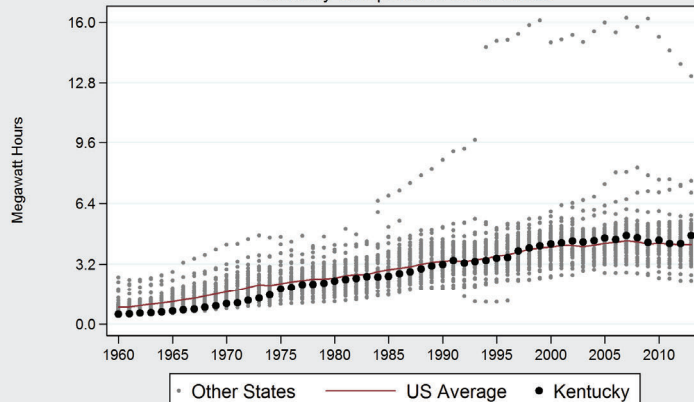
Commercial Energy Intensity

Annual Commercial Energy Consumption Per Capita, 1960-2012
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS & Census

Commercial Electricity Consumption Per Capita, 1960-2013
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA Form 861 & 826 & Census

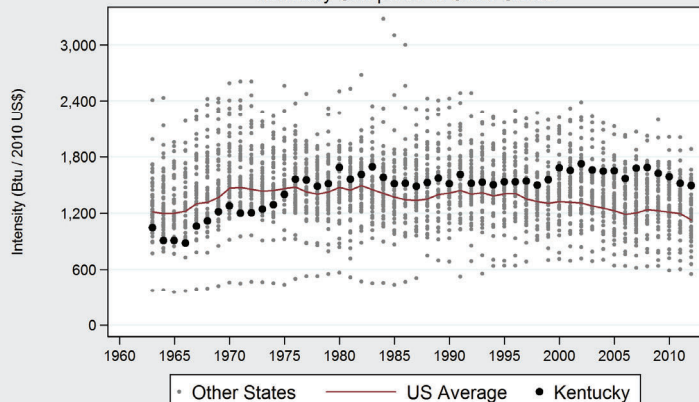
State	MMBtu per Capita	Rank
Wyoming	111	1st
Kentucky	58	25th
U.S. Average	55	-
Hawaii	27	50th

In 2012, Kentucky ranked 25th in terms of commercial energy consumption per capita, a decrease of less than 1 percent compared with 2011.

State	MWh per Capita	Rank
Wyoming	7.4	1st
Kentucky	4.3	24th
U.S. Average	4.2	-
Hawaii	2.3	50th

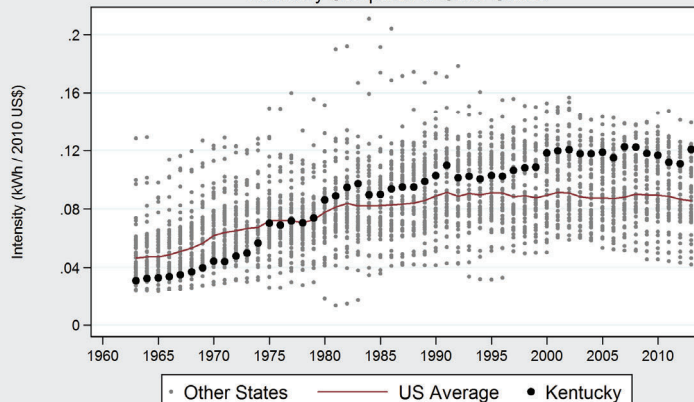
In 2013, Kentucky ranked 24th in terms of commercial electricity consumption per capita, an increase of 10 percent compared with 2012.

Commercial Energy Consumption per State GDP Dollar, 1963-2012
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS & BEA

Commercial Electricity Consumption per State GDP Dollar, 1963-2013
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA Form 861 & 826 & BEA

State	Btu/\$U.S. GDP	Rank
Montana	1,881	1st
Kentucky	1,492	12th
U.S. Average	1,129	-
Hawaii	552	50th

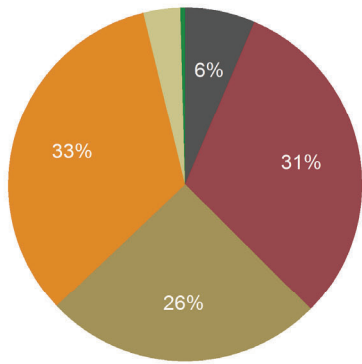
In 2012, Kentucky ranked 12th in terms of commercial energy consumption per dollar of state GDP. Commercial energy intensity decreased by 2 percent compared with 2011.

State	kWh/\$U.S. GDP	Rank
Mississippi	.14	1st
Kentucky	.12	6th
U.S. Average	.09	-
Massachusetts	.04	50th

In 2013, Kentucky ranked sixth in terms of commercial electricity use per dollar of state GDP. Commercial electricity intensity increased by 9 percent compared with 2012.

Industrial Energy Consumption

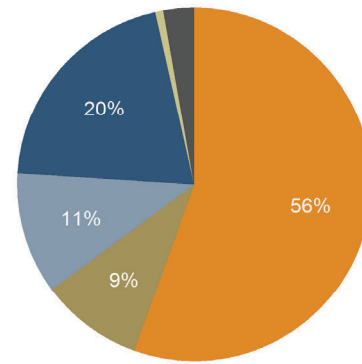
Kentucky Industrial Energy Consumption, 2012
Consumption by Fuel Type (%)



Coal Petroleum Natural Gas
Electricity Wood Ethanol Co-Products

Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Industrial Sector Energy Expenditures, 2012
Expenditures by Fuel Type (%)



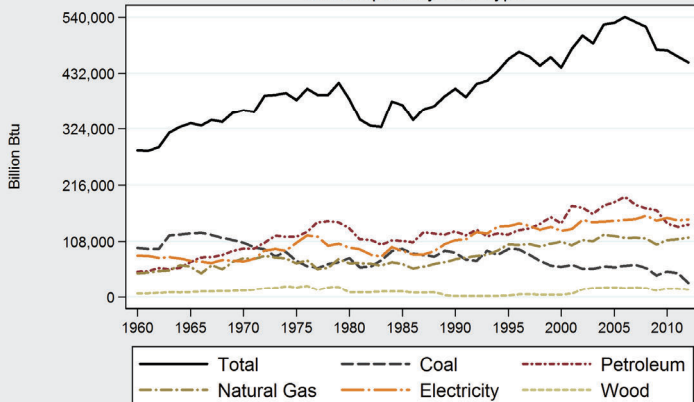
Electricity Natural Gas LPG
Diesel Wood Coal

Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Billion BTU	Percentage
Total Net*	453,582	100%
Electricity	150,796	33%
Petroleum	140,768	31%
Natural Gas	115,791	26%
Coal	29,069	6%
Wood	15,279	3%

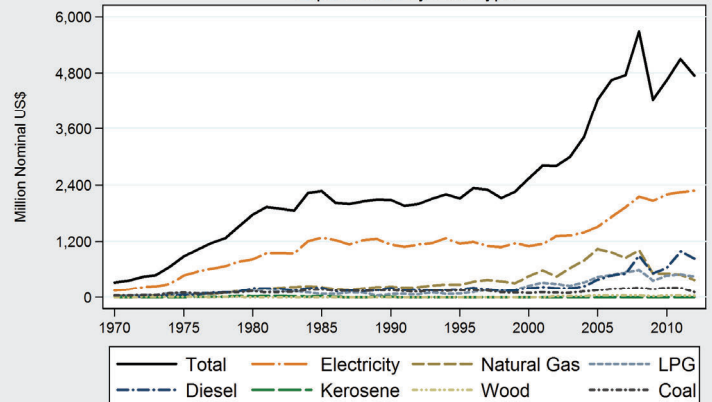
Fuel Type	Million U.S.\$	Percentage
Total	4,744	100%
Electricity	2,280	56%
Diesel	840	20%
Liquid Propane Gas	456	11%
Natural Gas	386	9%
Coal	114	2%

Kentucky Industrial Energy Consumption, 1960-2012
Consumption by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Industrial Sector Energy Expenditures, 1970-2012
Expenditures by Fuel Type



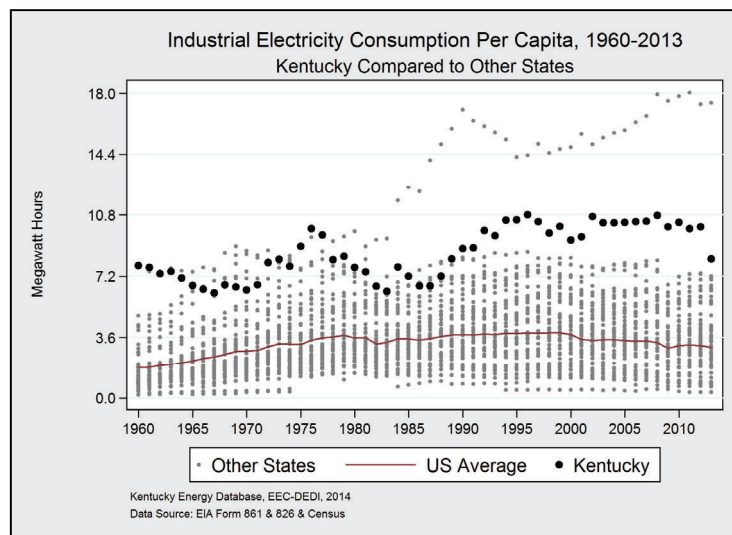
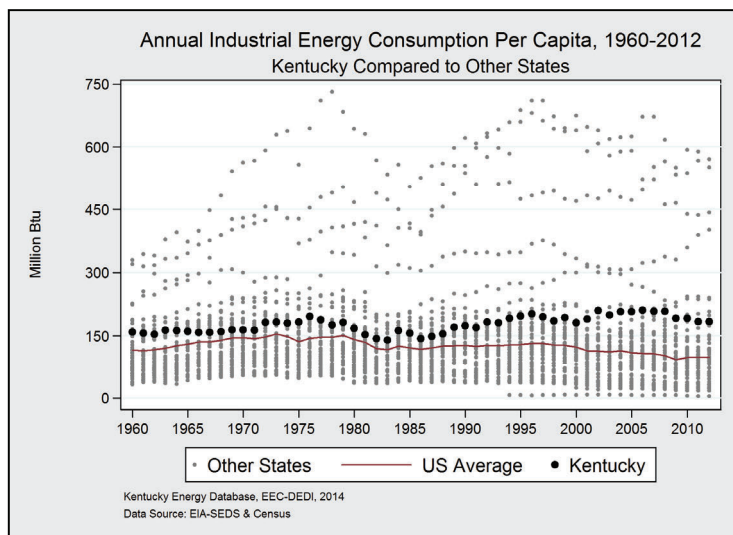
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

In 2012, industry in Kentucky consumed 453,582 billion Btu of energy. Compared with 2011, net industrial energy consumption decreased by 2 percent. Electricity consumption was the largest component of industrial energy use in 2012, or 33 percent of total industrial energy consumption. Assorted petroleum products and natural gas accounted for 31 percent and 26 percent of industrial energy consumption, respectively.

*Net energy consumption excludes energy losses associated with electricity transmission.

In 2012, industrial firms in Kentucky spent more than \$4.7 billion on energy commodities and energy consumption, a 7 percent decrease in industrial energy spending compared with 2011. Electricity was the largest expenditure, 56 percent of industrial energy spending. Diesel and propane accounted for 20 percent and 11 percent of industrial expenditures, respectively. Natural gas, coal, wood, and ethanol accounted for the remainder of industrial energy expenditures in 2012.

Industrial Energy Intensity

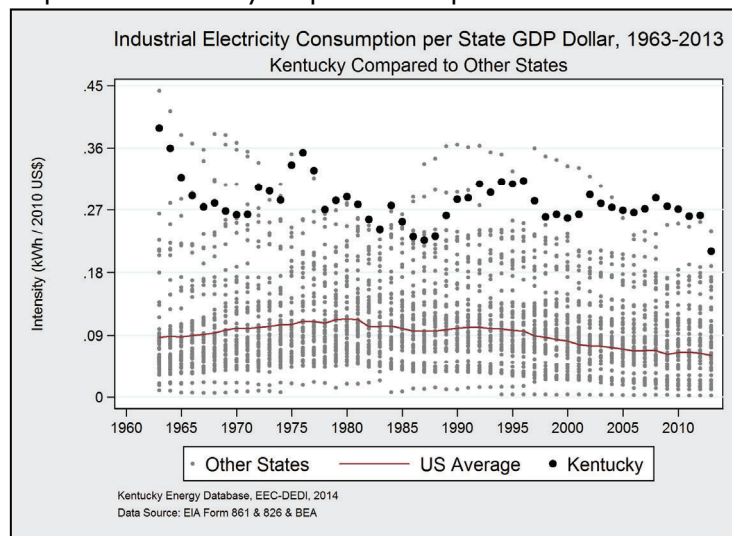
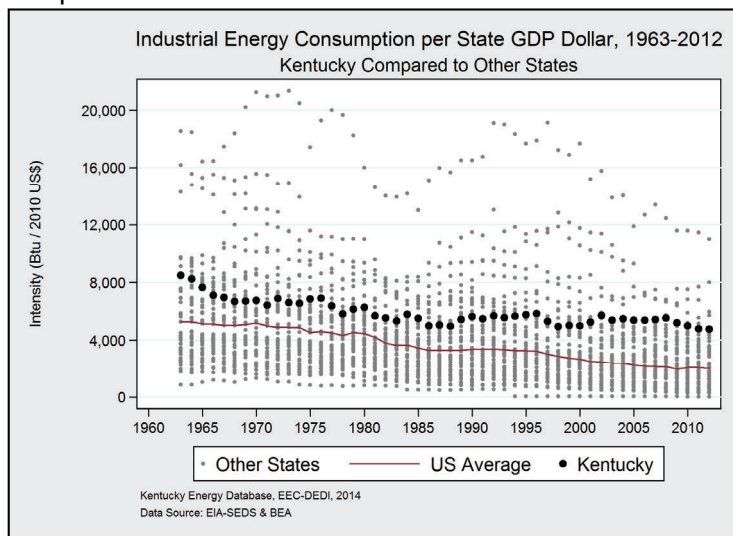


State	MMBtu per Capita	Rank
Louisiana	571	1st
Kentucky	184	9th
U.S. Average	99	-
New York	17	50th

In 2012, Kentucky ranked ninth in terms of industrial energy consumption per capita, a decrease of less than 1 percent compared with 2011.

State	MWh per Capita	Rank
Wyoming	17.4	1st
Kentucky	10.1	2nd
U.S. Average	3.1	-
New York	0.7	50th

In 2013, Kentucky was second in terms of industrial electricity consumption per capita. Industrial electricity consumption per capita decreased by 19 percent compared with 2012.



State	Btu/\$U.S. GDP	Rank
Louisiana	11,008	1st
Kentucky	4,760	6th
U.S. Average	2,022	-
New York	279	50th

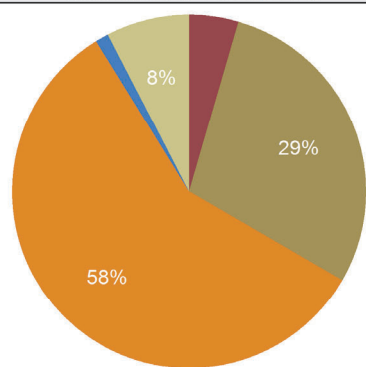
In 2012, Kentucky ranked fifth in terms of industrial energy consumption per dollar of state GDP. Industrial energy intensity decreased by 1 percent compared with 2011.

State	kWh/\$U.S. GDP	Rank
Wyoming	.24	1st
Kentucky	.21	2nd
U.S. Average	.06	-
New York	.01	50th

In 2013, Kentucky ranked second in terms of industrial electricity use per dollar of state GDP. Industrial electricity intensity decreased by 19 percent compared with 2012.

Residential Energy Consumption

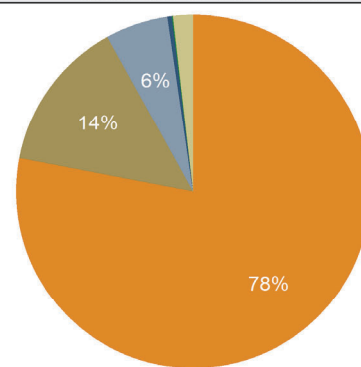
Kentucky Residential Energy Consumption, 2012
Consumption by Fuel Type (%)



■ Petroleum ■ Natural Gas ■ Electricity
■ Geothermal ■ Wood

Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Residential Sector Energy Expenditures, 2012
Expenditures by Fuel Type (%)



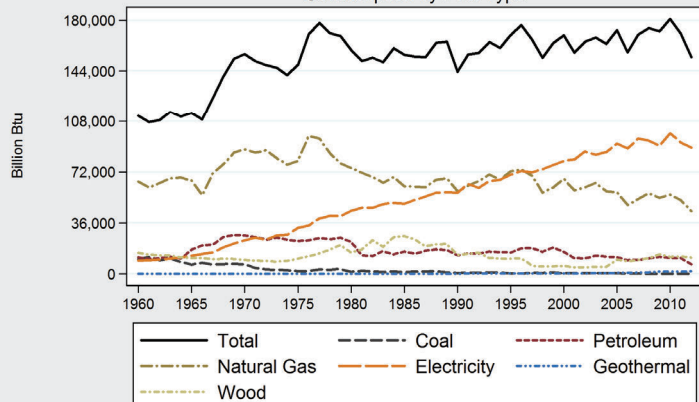
■ Electricity ■ Natural Gas ■ LPG
■ Diesel ■ Kerosene ■ Wood

Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Billion BTU	Percentage
Total Net*	154,044	100%
Electricity	89,042	58%
Natural Gas	44,413	29%
Wood	11,682	8%
Petroleum	6,919	4%
Geothermal	1,860	1%

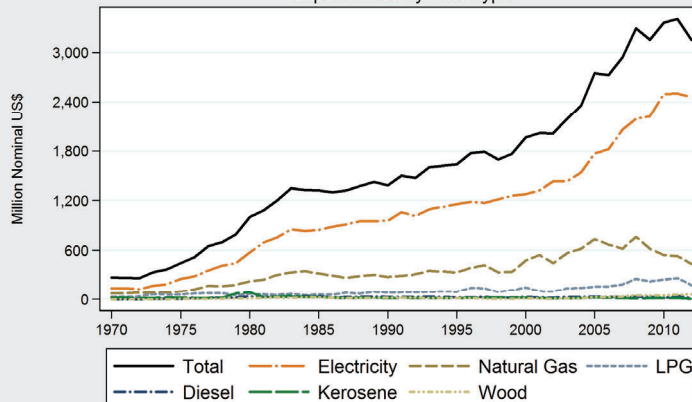
Fuel Type	Million U.S.\$	Percentage
Total	3,154	100%
Electricity	2,461	78%
Natural Gas	439	14%
Liquid Propane Gas	181	6%
Wood	58	2%
Kerosene	3	<1%

Kentucky Residential Energy Consumption, 1960-2012
Consumption by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Residential Sector Energy Expenditures, 1970-2012
Expenditures by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

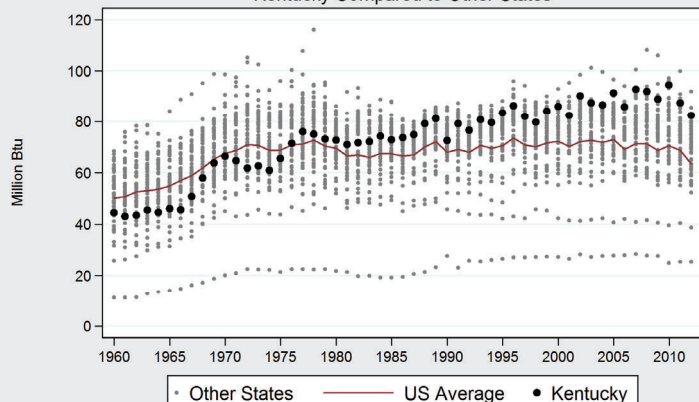
In 2012, households in Kentucky consumed 54,044 billion Btu of energy, a 10 percent decrease in net residential energy consumption compared with 2011. The largest portion, 56 percent, of energy used in the residential sector was through electricity. Natural gas was the second largest concentration of residential energy consumption at 29 percent in 2012.

*Net energy consumption excludes energy losses associated with electricity transmission.

Residents of Kentucky spent nearly \$3.2 billion on energy commodities and energy consumption in 2012, a 7 percent decrease in residential energy expenditures compared with 2011. Electricity expenditures comprised 78 percent of spending, which totaled \$2.5 billion during the year. Natural gas, propane, wood, kerosene, and No. 2 heating oil represented much smaller components of residential energy expenditures relative to electricity in 2011.

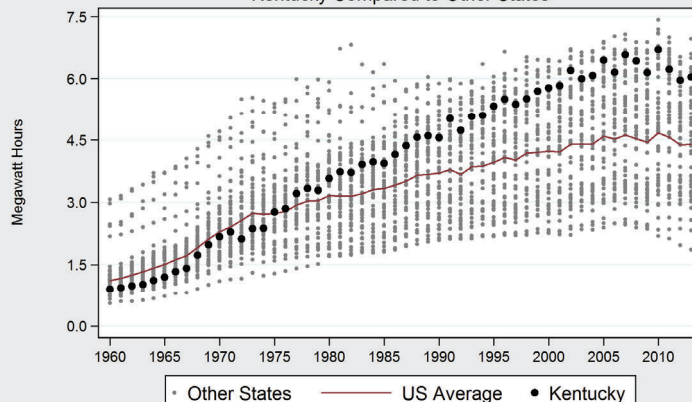
Residential Energy Intensity

Annual Residential Energy Consumption Per Capita, 1960-2012
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS & Census

Residential Electricity Consumption Per Capita, 1960-2013
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA Form 861 & 826 & Census

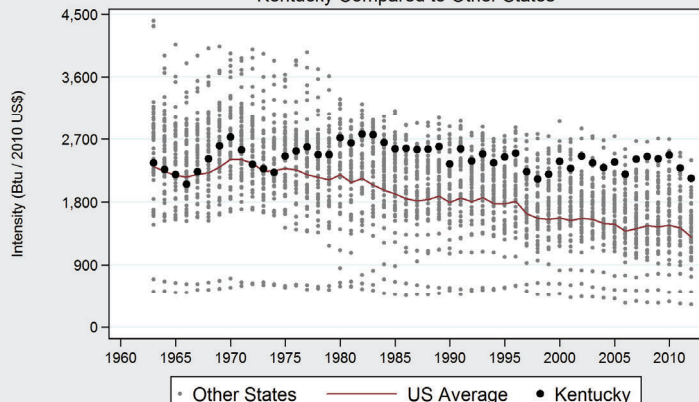
State	MMBtu per Capita	Rank
North Dakota	92	1st
Kentucky	83	3rd
U.S. Average	63	-
Hawaii	25	50th

In 2012, Kentucky ranked third in terms of residential energy consumption per capita. Residential energy consumption per capita decreased by 6 percent compared with 2010.

State	MWh per Capita	Rank
Louisiana	6.5	1st
Kentucky	6.0	10th
U.S. Average	4.4	-
Hawaii	2.0	50th

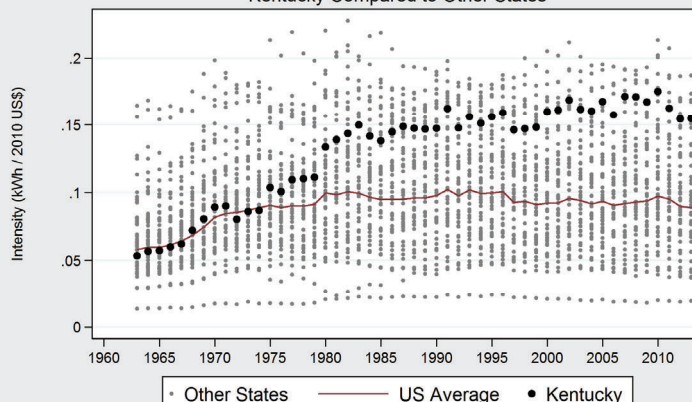
In 2013, Kentucky ranked tenth nationally in terms of residential electricity use per capita. Residential electricity use per capita increased by 1 percent compared with 2013.

Residential Energy Consumption per State GDP Dollar, 1963-2012
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS & BEA

Residential Electricity Consumption per State GDP Dollar, 1963-2013
Kentucky Compared to Other States



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA Form 861 & 826 & BEA

State	Btu/\$U.S. GDP	Rank
West Virginia	2,398	1st
Kentucky	2,138	2nd
U.S. Average	1,298	-
Hawaii	512	50th

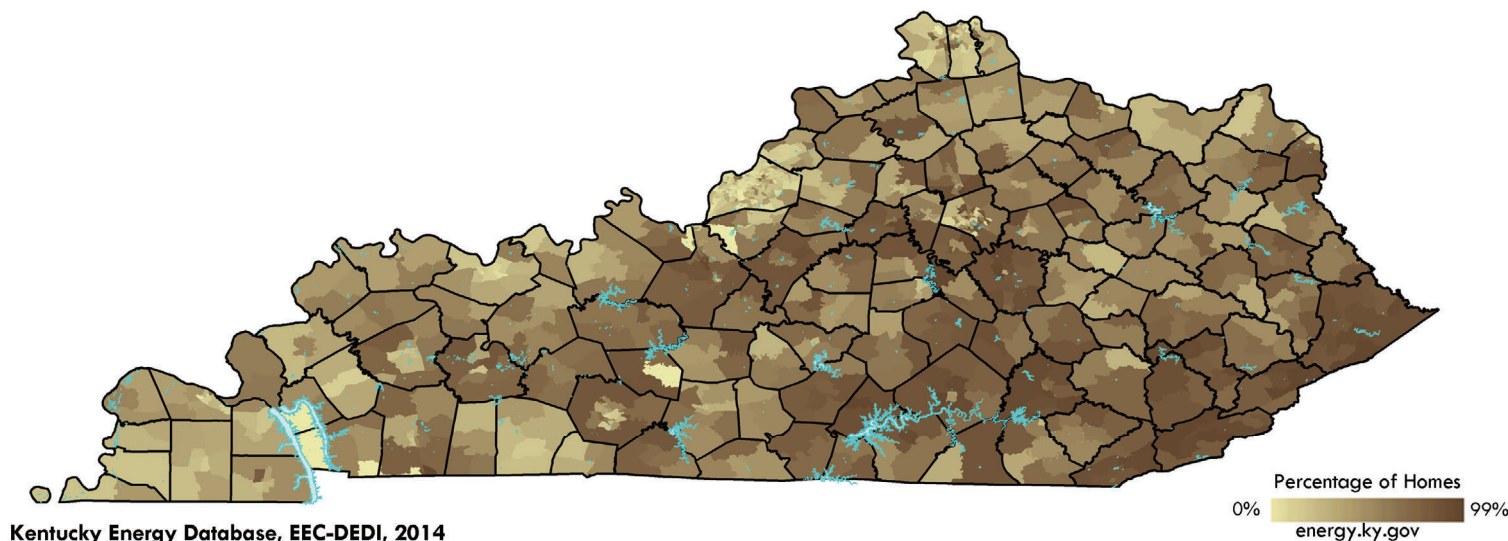
In 2012, Kentucky ranked second in terms of residential energy consumption relative to one dollar of state GDP. Residential energy intensity decreased by 6 percent compared with 2011.

State	kWh/\$U.S. GDP	Rank
Mississippi	.19	1st
Kentucky	.15	6th
U.S. Average	.09	-
Hawaii	.04	50th

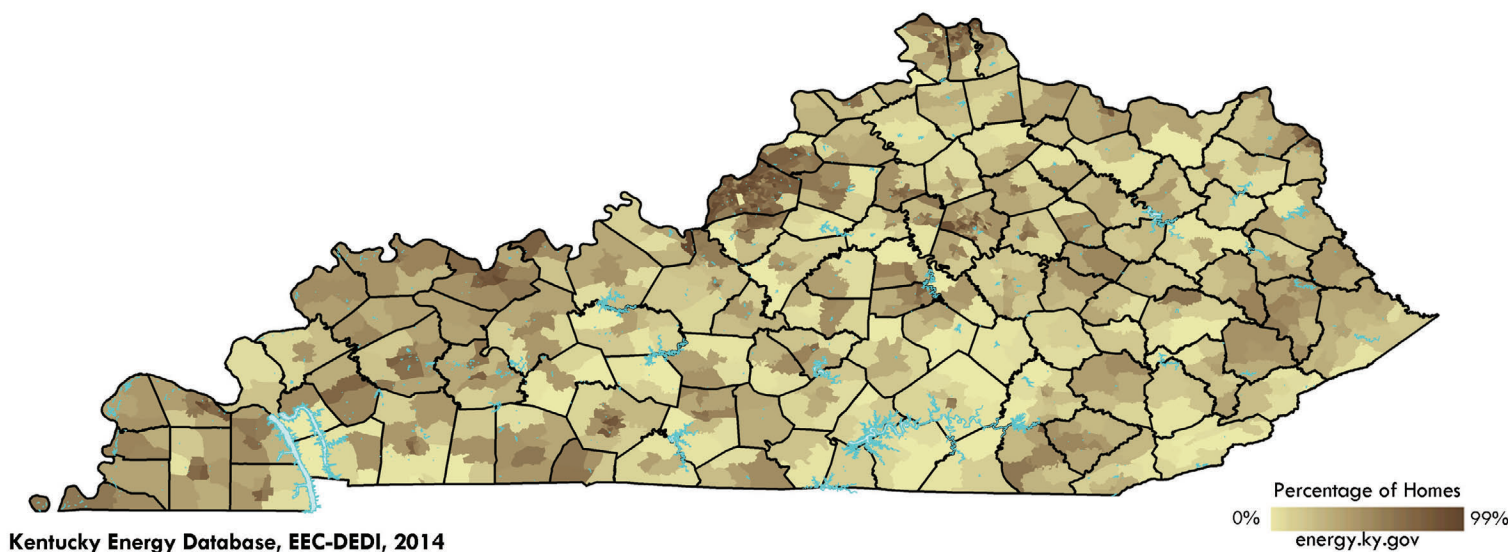
In 2013, Kentucky ranked sixth in terms of residential electricity use relative to one dollar of state GDP, which is due having relatively low GDP and high residential electricity use in manufactured homes and electric heat.

Kentucky Home Heating Fuels

Kentucky Households Heating with Electricity, 2012



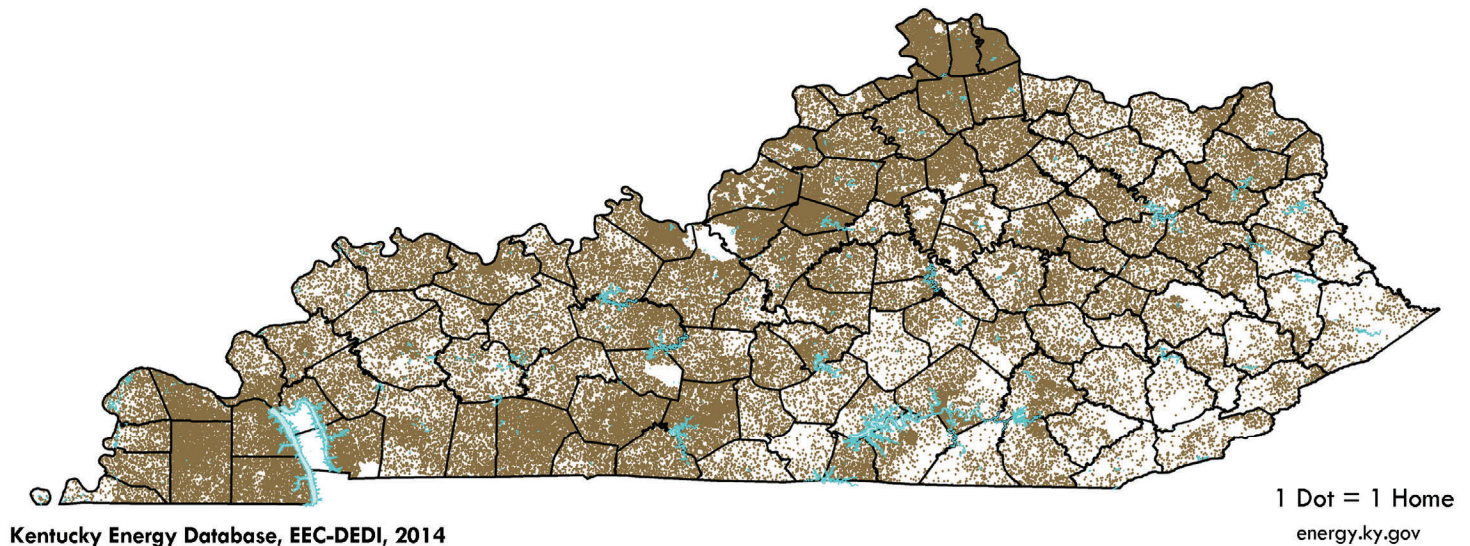
Kentucky Households Heating with Natural Gas, 2012



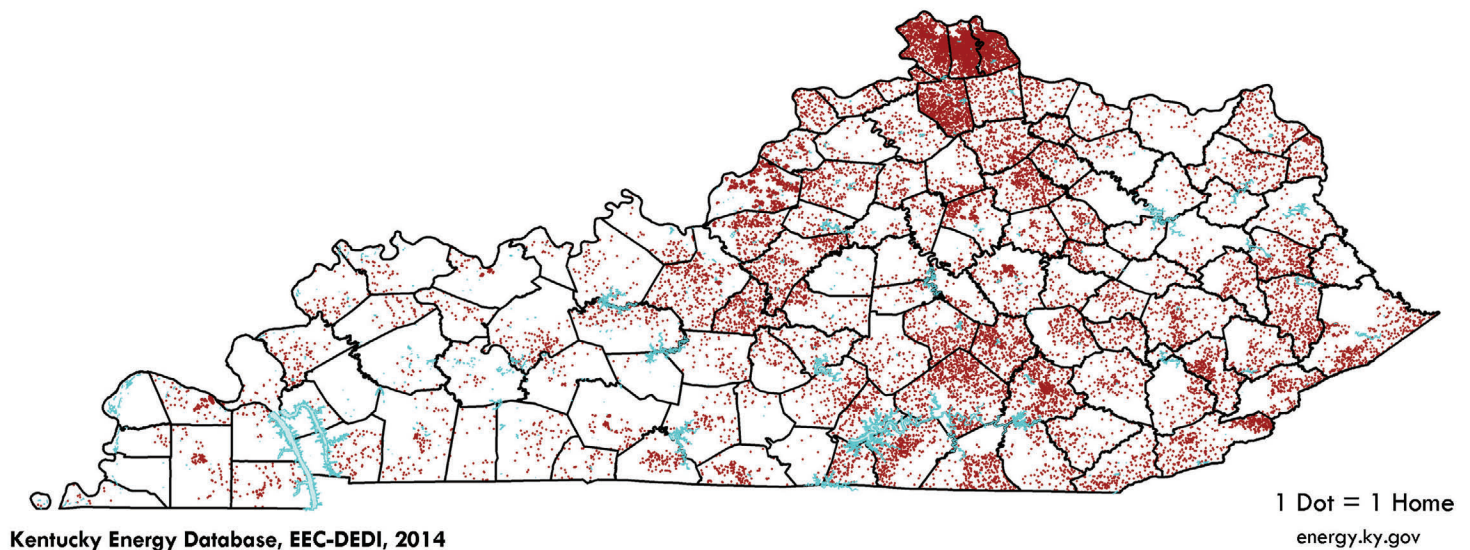
The maps above illustrate the proportion of homes heated with either electricity or natural gas by individual neighborhoods within counties across Kentucky. Electric heat is the primary means of home heating across the Commonwealth—nearly half Kentucky households heat with electricity. Electric heat is predominant in rural areas where there may be limited access to alternative fuels and where there are more manufactured homes. Thirteen percent of Kentucky families live in manufactured homes, which almost exclusively heat with electricity. Manufactured homes are more prevalent in the Appalachian Mountains of southeastern Kentucky, which is a main reason why electric heat is more common in this region. Approximately 51 percent of families in Lexington have electric heat, whereas 80 percent of the homes in Harlan, Letcher, and Pike counties heat with electricity. Utility natural gas serves as the primary method of home heating for nearly 40 percent of Kentucky families; however, pipeline natural gas is the most-common heating source in the urban population centers of Louisville, Owensboro, Paducah, Bowling Green, and Northern Kentucky.

Kentucky Home Heating Fuels

Kentucky Households Heating with Propane, 2012



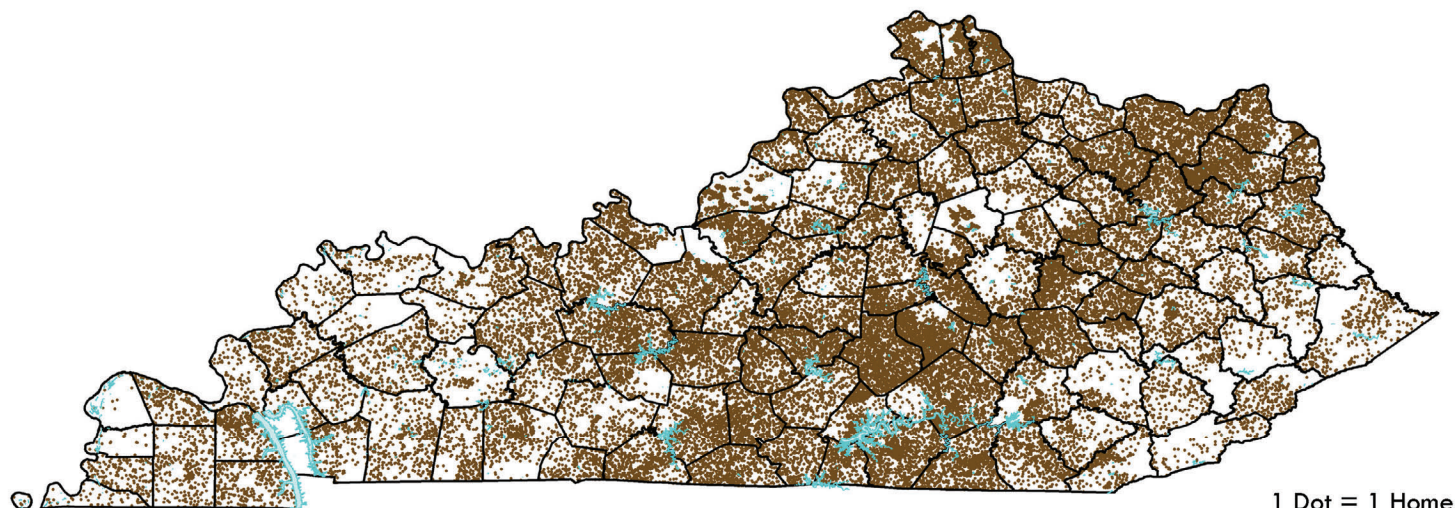
Kentucky Households Heating with Fuel Oil or Kerosene, 2012



The maps above show the number of homes that heat with propane, fuel oil, or kerosene—all of which are most commonly derived from petroleum. Each dot represents an individual Kentucky household and its approximate location within each county across the state. Approximately 6.8 percent of Kentucky families heat with propane and 1.2 percent heat with either fuel oil or kerosene. Propane, fuel oil, and kerosene are generally delivered to residences by truck. About 115,000 homes heat with propane, making propane the third most-common heating fuel in Kentucky. More than 20,000 homes in Kentucky, or 1.2 percent, heat with fuel oil or kerosene. The largest number of homes that heat with fuel oil or kerosene are in Kenton, Boone, and Campbell counties in Northern Kentucky, but only represent approximately 3 percent of homes. The largest percentage of homes in any county that use these petroleum-based fuels are in Grant, Robertson, Owsley, and Rockcastle, and Larue counties at 5 to 10 percent of total homes.

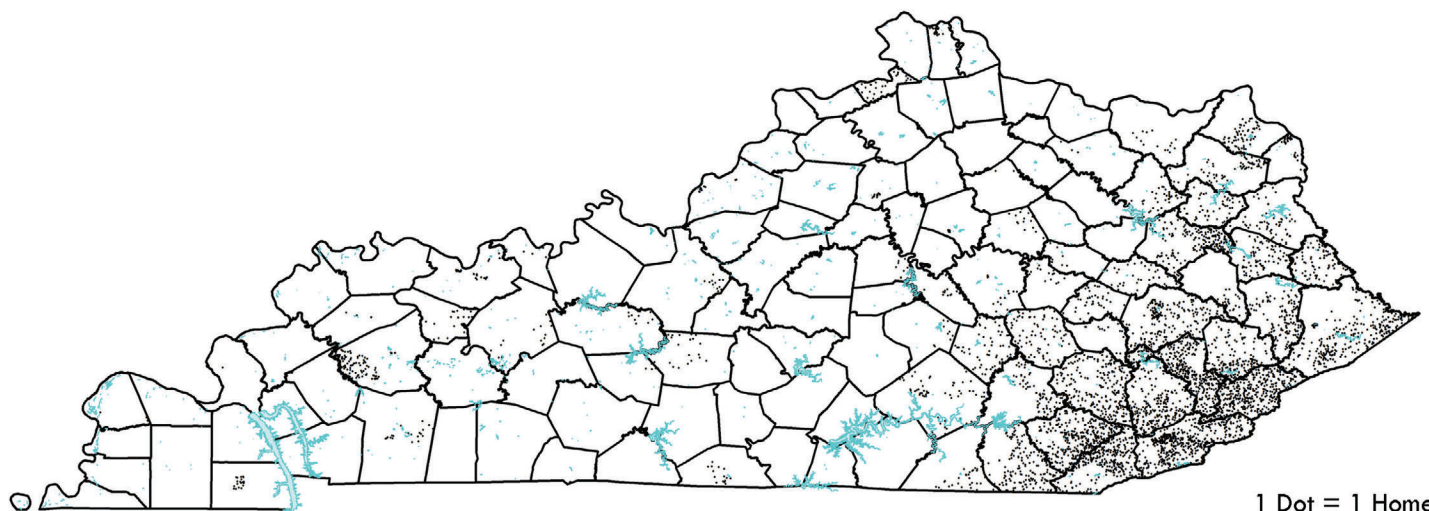
Kentucky Home Heating Fuels

Kentucky Households Heating with Wood, 2012



Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Households Heating with Coal, 2012



Kentucky Energy Database, EEC-DEDI, 2014

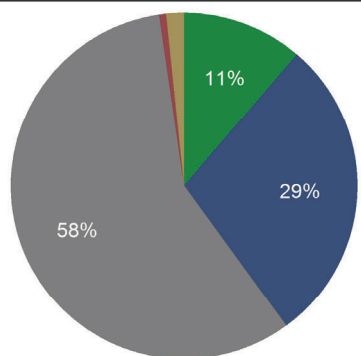
The maps above show the number of Kentucky households that heat with wood or coal and their approximate location across the Commonwealth. Wood is the oldest source of home heating and has been burned for heat since the beginning of human history. While many, if not most, homes in Kentucky have a wood-burning fireplace—even if only for aesthetic reasons—more than 47,000 homes, or 2.8 percent, burn wood as their primary source of heat. Many of these homes are concentrated in the Daniel Boone National Forest of eastern Kentucky. In more than 18 Kentucky counties, homes that heat with wood represent more than 10 percent of total households. More than 20 percent of homes in Lewis and Casey counties heat with wood. The second-oldest source of home heating is coal and more than 5,000 Kentucky families heated their homes in 2012 by burning coal. Homes that heat with coal are concentrated in coal-producing counties in the eastern and western Kentucky coalfields. In Leslie County, 5.7 percent of homes heat with coal. In Harlan, Letcher, Morgan, Breathitt, Clay, Perry, Knott, Bell, Knox, Elliot, and Martin counties, more than 2 percent of homes burn coal for their primary method of home heating.

Kentucky Home Heating Fuels

Location	Total	Electric	Gas	LP	Oil	Wood	Coal	Location	Total	Electric	Gas	LP	Oil	Wood	Coal
Kentucky	1,691,716	828,273	668,167	114,684	20,546	47,103	5,022	Kentucky	1,691,716	828,273	668,167	114,684	20,546	47,103	5,022
Adair	7,236	5,085	1,036	504	162	449	0	Knox	12,421	7,588	3,851	293	105	243	316
Allen	7,980	5,175	980	1,168	96	522	0	Larue	5,269	3,127	1,132	514	290	197	0
Anderson	8,369	5,725	1,940	388	42	268	0	Laurel	22,490	17,561	2,761	1,067	541	422	83
Ballard	3,379	1,568	1,085	707	0	11	4	Lawrence	5,666	3,321	1,137	471	89	556	61
Barren	16,848	8,124	5,026	2,797	91	698	0	Lee	2,828	1,370	379	548	80	396	49
Bath	4,421	2,392	767	823	33	406	0	Leslie	4,317	3,291	275	157	117	217	245
Bell	10,881	8,047	1,785	186	193	291	291	Letcher	9,324	7,611	455	378	181	219	403
Boone	42,617	17,949	20,070	2,594	1,197	490	0	Lewis	4,925	2,069	744	908	33	1,128	19
Bourbon	7,971	4,158	2,607	618	334	184	3	Lincoln	9,767	6,718	1,203	564	287	939	9
Boyd	19,608	9,116	9,328	526	157	280	34	Livingston	3,553	2,000	308	1,088	20	133	1
Boyle	11,143	4,968	5,170	498	45	407	0	Logan	10,899	3,939	3,251	3,188	56	444	0
Bracken	3,231	1,535	830	442	111	287	0	Lyon	3,278	1,624	984	568	10	74	0
Breathitt	5,297	3,203	629	511	251	466	209	McCracken	27,293	9,764	15,050	1,913	212	252	0
Breckinridge	7,405	3,527	1,618	1,551	61	584	0	McCreary	6,287	4,666	286	252	267	775	30
Bullitt	27,791	11,030	13,881	1,972	260	572	0	McLean	3,699	1,905	1,096	518	40	86	27
Butler	5,052	2,988	700	920	37	379	0	Madison	31,281	23,871	5,755	983	198	321	16
Caldwell	5,092	1,668	2,404	794	0	199	0	Magoffin	4,985	2,844	1,268	577	123	143	26
Calloway	14,998	7,066	5,006	2,467	81	315	19	Marion	7,423	3,876	1,873	973	143	510	0
Campbell	35,235	12,431	18,995	1,955	1,019	568	0	Marshall	12,272	4,909	4,965	1,994	25	354	0
Carlisle	2,085	778	782	468	18	22	0	Martin	4,408	2,514	1,471	194	61	83	77
Carroll	4,268	1,910	1,634	394	87	212	0	Mason	6,728	3,132	2,855	383	74	243	0
Carter	10,412	6,314	1,310	1,390	184	1,062	83	Meade	10,253	6,060	2,005	1,738	76	353	0
Casey	6,162	3,716	674	284	124	1,296	0	Menifee	2,352	1,280	297	494	26	250	0
Christian	26,100	14,479	9,099	1,814	95	416	20	Mercer	8,486	4,752	2,808	571	34	295	8
Clark	14,547	7,764	5,444	861	116	293	17	Metcalfe	3,947	1,935	851	509	23	595	0
Clay	6,971	4,192	1,712	460	129	186	251	Monroe	4,441	2,235	1,121	392	123	552	15
Clinton	3,908	2,496	232	702	133	345	0	Montgomery	10,093	6,177	2,978	469	140	295	0
Crittenden	3,835	1,703	758	896	94	335	0	Morgan	4,666	2,630	430	1,020	41	339	201
Cumberland	2,605	1,762	200	194	10	439	0	Muhlenberg	11,974	6,754	4,270	769	22	131	0
Daviess	37,582	10,724	24,553	1,761	75	308	35	Nelson	16,548	11,690	2,513	1,393	373	483	0
Edmonson	4,819	3,583	162	724	7	334	6	Nicholas	2,731	1,609	463	301	120	208	0
Elliott	2,508	1,177	148	713	32	351	55	Ohio	8,719	4,577	2,267	1,127	120	580	17
Estill	5,801	2,927	1,483	679	56	637	19	Oldham	19,446	7,685	10,232	1,059	117	306	0
Fayette	122,793	63,189	57,944	730	274	398	10	Owen	4,578	2,766	138	1,204	127	327	0
Fleming	5,468	3,445	455	643	68	812	3	Owsley	1,642	1,025	72	168	124	227	26
Floyd	15,602	9,378	5,107	392	361	167	144	Pendleton	5,477	2,450	829	1,456	220	391	0
Franklin	20,948	9,176	10,053	1,142	101	374	12	Perry	11,031	8,138	1,727	357	275	101	394
Fulton	2,961	1,162	1,327	377	20	59	0	Pike	26,822	21,007	4,260	510	387	322	278
Gallatin	3,019	1,600	422	700	94	154	34	Powell	4,678	2,062	1,559	579	100	317	14
Garrard	6,239	4,366	918	315	54	559	12	Pulaski	26,375	19,733	2,851	1,511	731	1,324	60
Grant	8,674	4,567	1,050	1,683	841	470	0	Robertson	824	351	108	183	63	89	0
Graves	14,699	5,232	5,434	3,581	76	304	0	Rockcastle	6,497	4,698	104	566	407	580	59
Grayson	9,945	6,077	1,254	1,665	114	791	10	Rowan	8,139	5,035	1,724	675	36	596	40
Green	4,480	2,218	866	777	82	532	0	Russell	7,364	6,131	249	374	154	446	0
Greenup	14,421	6,066	6,166	1,086	194	720	71	Scott	17,676	10,948	4,663	1,436	154	331	0
Hancock	3,255	1,232	1,368	410	18	223	4	Shelby	15,246	7,013	5,810	1,778	260	303	0
Hardin	38,908	25,907	9,452	2,048	335	1,018	13	Simpson	6,677	2,729	2,940	721	41	218	0
Harlan	11,058	9,306	221	443	433	132	491	Spencer	6,234	3,677	211	1,985	64	233	0
Harrison	7,243	3,772	1,469	1,123	289	525	0	Taylor	9,490	4,736	3,126	861	94	630	0
Hart	6,957	3,745	1,254	1,077	77	763	24	Todd	4,689	2,265	849	1,279	31	265	0
Henderson	18,665	8,388	8,663	1,356	44	159	0	Trigg	6,034	3,100	1,035	1,574	74	251	0
Henry	6,018	3,301	1,217	1,213	38	197	0	Trimble	3,464	2,118	550	376	129	253	0
Hickman	1,980	567	505	728	0	169	0	Union	5,410	2,665	1,893	645	59	108	0
Hopkins	18,556	8,618	8,344	1,055	17	358	93	Warren	43,801	21,657	19,061	2,511	118	375	0
Jackson	5,739	3,931	250	553	159	764	82	Washington	4,541	2,557	760	919	13	268	0
Jefferson	303,915	88,341	####	3,231	668	553	12	Wayne	8,296	5,884	156	783	388	1,036	0
Jessamine	17,960	11,190	5,863	508	39	314	0	Webster	4,995	2,702	1,609	564	47	70	3
Johnson	9,329	6,249	2,012	457	250	249	87	Whitley	13,330	6,841	4,750	786	136	550	167
Kenton	62,260	20,733	36,521	2,194	1,925	482	28	Wolfe	2,686	1,388	378	475	43	354	42
Knott	5,855	3,423	1,768	305	128	71	160	Woodford	9,847	5,054	4,141	482	75	87	0

Transportation Energy Consumption

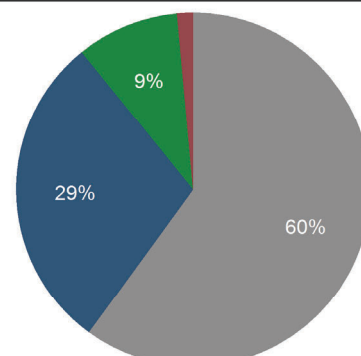
Kentucky Transportation Energy Consumption, 2012
Consumption by Fuel Type (%)



Jet Fuel Diesel Gasoline
Other Petroleum Natural Gas

DEDI Energy Database, 2012

Kentucky Transportation Energy Expenditures, 2012
Expenditures by Fuel Type (%)



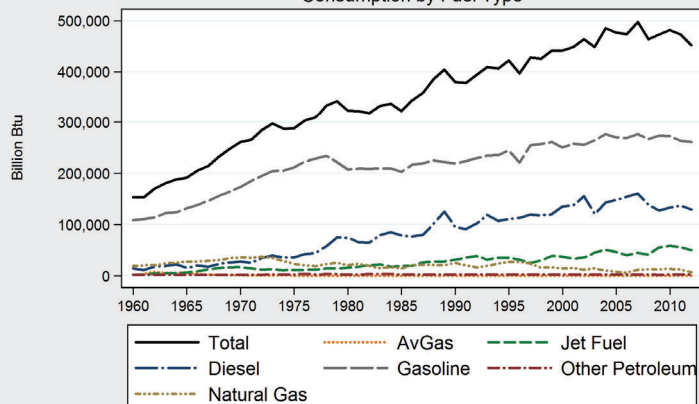
Gasoline Diesel Jet Fuel
Other Petroleum

Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Billion BTU	Percentage
Total	452,406	100%
Gasoline	260,958	57%
Diesel	129,756	29%
Jet Fuel	51,032	11%
Natural Gas*	7,514	2%
Other Petroleum	2,938	<1%

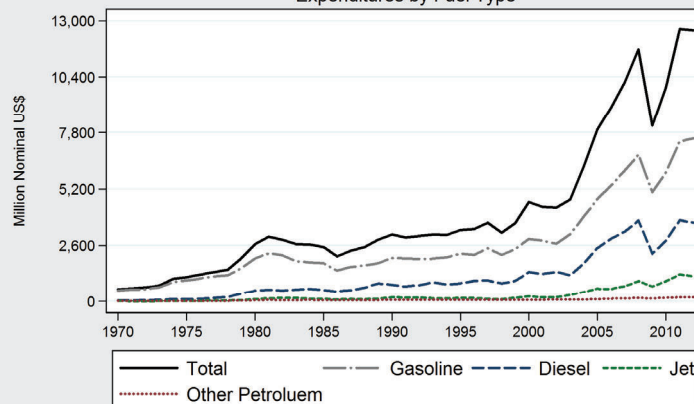
Fuel Type	Million U.S.\$	Percentage
Total	12,551	100%
Gasoline	7,531	60%
Diesel	3,653	29%
Jet Fuel	1,178	9%
Other Petroleum	182	2%

Kentucky Transportation Energy Consumption, 1960-2012
Consumption by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Transportation Energy Expenditures, 1970-2012
Expenditures by Fuel Type



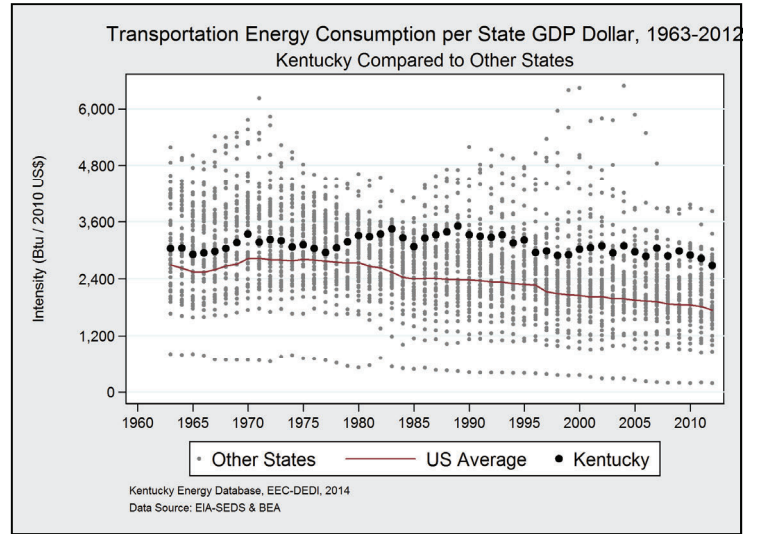
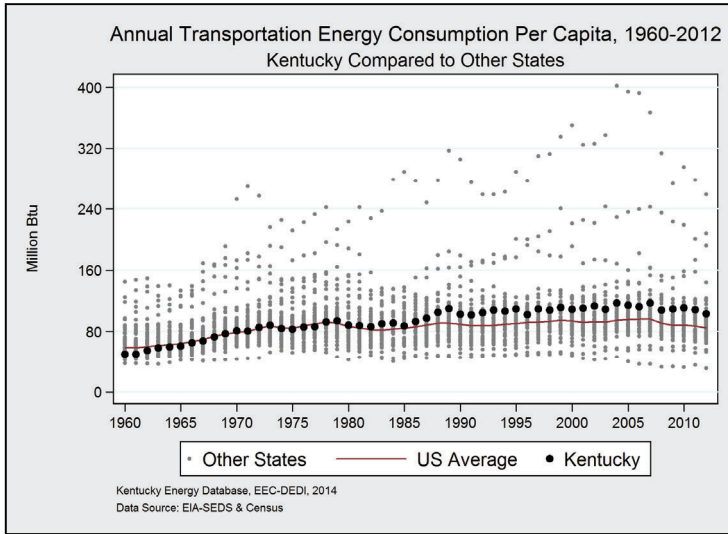
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Transportation sector energy consumption in Kentucky was 452,406 billion Btu in 2012, a 4 percent decrease compared with 2011. Gasoline was 57 percent of transportation energy consumption in 2010, followed by diesel at 29 percent. Between 6 and 10 percent of all gasoline, and 2 percent of all diesel, sold in Kentucky was derived from renewable biofuels.

*Natural gas use for transportation is predominantly consumption by pipelines. Vehicle fuel consumption of natural gas in Kentucky is very small, in 2012 it was 1 billion Btu.

Transportation energy expenditures were approximately \$12.6 billion in Kentucky in 2012. Compared with 2011, transportation energy expenditures decreased by less than one percent. Gasoline was the largest component of transportation energy expenditures, 60 percent of spending in 2012. Diesel expenditures were 29 percent of transportation energy costs in Kentucky in 2012. (Consumption of natural gas by way of transmission pipelines is not tabulated in terms of transportation sector energy expenditures).

Transportation Energy Intensity



State	MMBtu per Capita	Rank
Alaska	259	1st
Kentucky	103	11th
U.S. Average	85	-
New York	54	50th

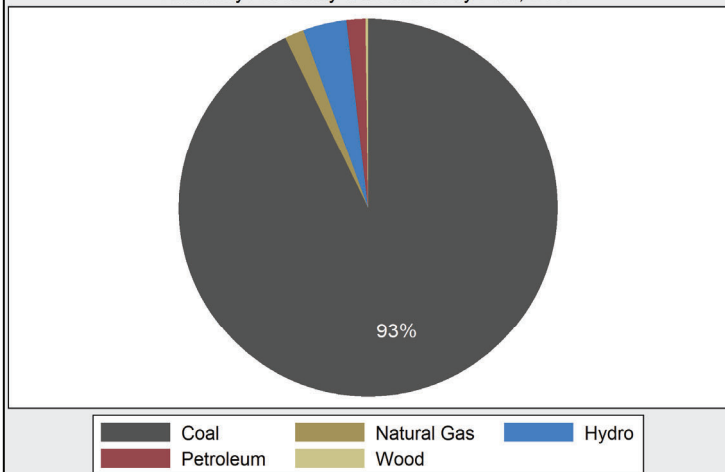
In 2012, Kentucky ranked 11th nationally in terms of transportation energy consumption per capita. Transportation energy consumption per capita decreased by 5 percent compared with 2011.

State	Btu/\$U.S. GDP	Rank
Mississippi	3,821	1st
Kentucky	2,677	10th
U.S. Average	1,742	-
New York	864	50th

In 2012, Kentucky ranked 10th in terms of transportation energy consumption per dollar of state GDP. Transportation energy intensity decreased by 5 percent compared with 2011.

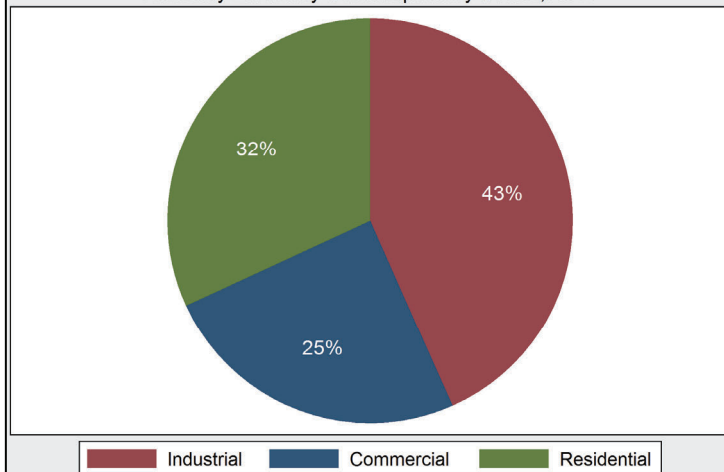
Kentucky Electricity

Kentucky Electricity Generation by Fuel, 2013



Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Electricity Consumption by Sector, 2013

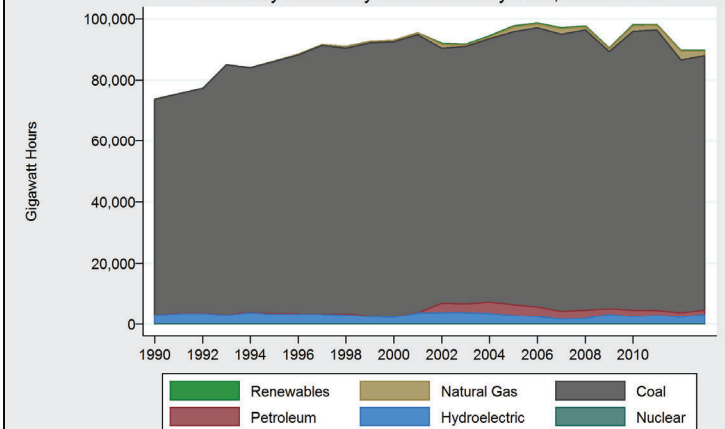


Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Gigawatt Hours	Annual Change
Total	89,763	-0.1%
Coal	83,177	+7.4%
Hydro	3,356	+41.3%
Natural Gas	1,471	-50.5%
Petroleum	1,426	-9.0%
Wood & Biomass	322	-2.3%

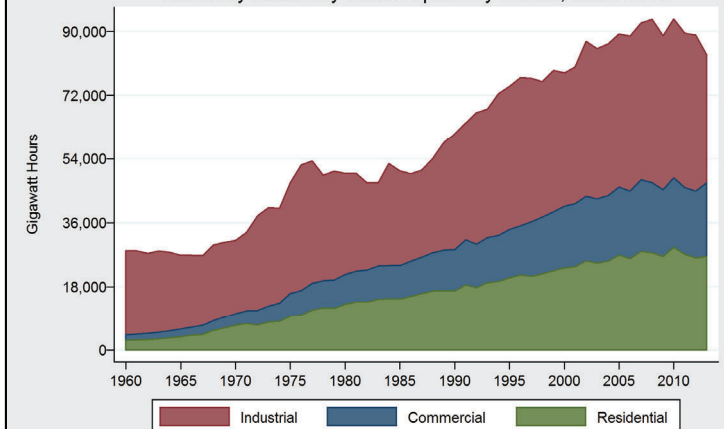
Sector	Gigawatt Hours	Annual Change
Total*	83,407	-6.3%
Industrial	36,150	-18.2%
Residential	26,561	+10.3%
Commercial	20,696	+1.8%

Kentucky Electricity Generation by Fuel, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA Electric Power Annual

Kentucky Electricity Consumption by Sector, 1960-2013



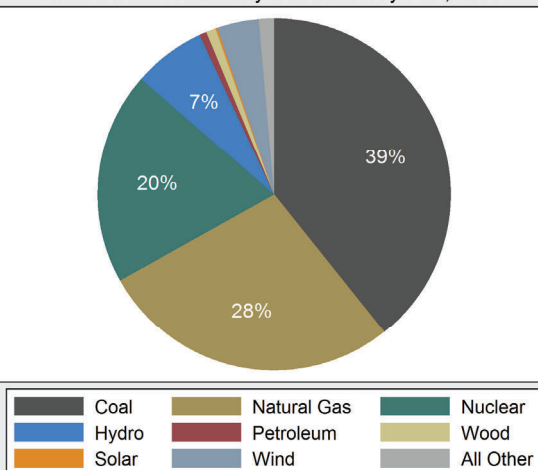
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA SEDS & EIA Form 861 & 826

Of the electricity generated in Kentucky in 2013, 92.7 percent was derived through the combustion of coal. Despite an aggregate decrease in total electricity generation in 2013, the amount of coal consumed increased. Hydroelectric power recovered from the 2012 drought to produce the second-most of all fuels. Natural gas facilities were the third-largest source of electricity and was used primarily for peak load periods. Due to existing coal resources and power plant infrastructure Kentucky has consistently used coal to meet the vast majority of electricity demand within the state.

Electricity consumption in Kentucky during 2013 totaled 83,407 gigawatt-hours, a decrease of 6 percent compared with 2012. The industrial sector remained the largest consumer of electricity in Kentucky, representing nearly 43 percent of total electricity consumption (the national average for industrial electricity consumption was 28 percent in 2012). The residential sector was the second-largest consumer of electricity during 2013 with 32 percent of consumption, followed by the commercial sector with 25 percent. *The difference between generation and consumption are exports and transmission losses.

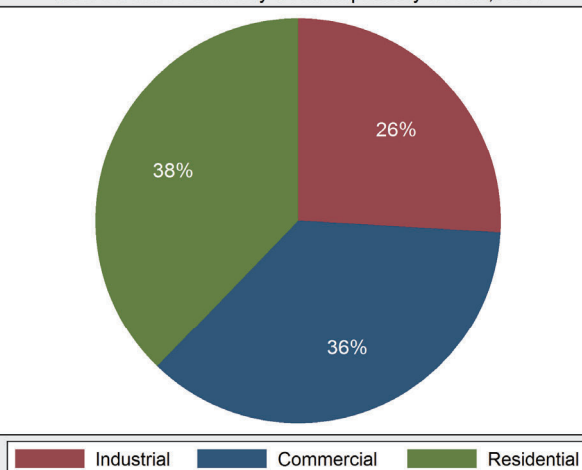
United States Electricity

United States Electricity Generation by Fuel, 2013



Kentucky Energy Database, EEC-DEDI, 2014

United States Electricity Consumption by Sector, 2013

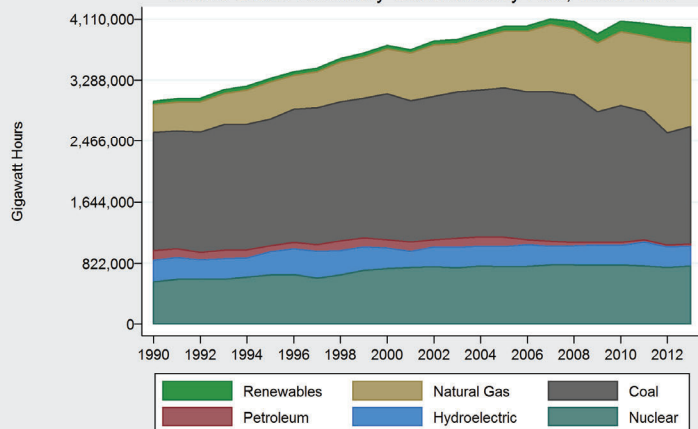


Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Gigawatt Hours	Annual Change
Total	4,059,252	+0.1%
Coal	1,586,776	+4.6%
Natural Gas	1,116,906	-9.3%
Nuclear	789,009	+2.6%
Hydro	268,908	-2.8%
Wind	153,587	+9.6%

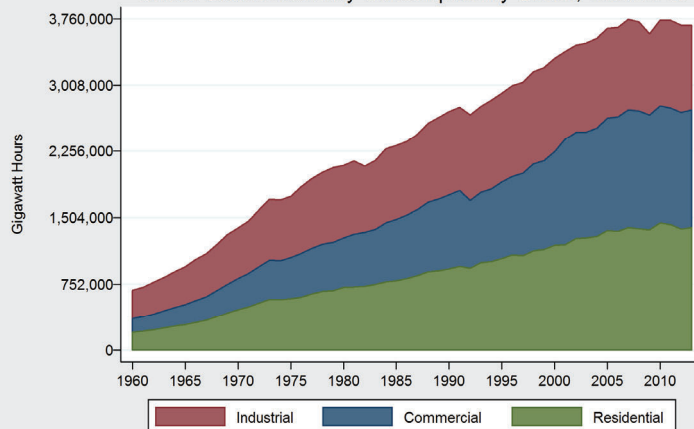
Sector	Gigawatt Hours	Annual Change
Total	3,691,788	-0.1%
Residential	1,391,087	+1.2%
Commercial	1,338,448	+0.8%
Industrial	954,727	-3.2%

United States Electricity Generation by Fuel, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA Electric Power Annual

United States Electricity Consumption by Sector, 1960-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA SEDS & EIA Form 861 & 826

The United States generated more than four petawatt-hours in 2013, an increase of 0.12 percent. Coal-fired electricity generation not only remained the largest source of electricity at 39 percent of total, but also increased by 4.59 percent in 2013 from 2012. Wind electricity generation was the fastest-growing at 9.64 percent and supplied 3.8 percent of total electricity requirements. Nuclear and hydroelectricity generation have remained fairly constant for decades, supplying 20 and 7 percent respectively.

Total electricity consumption decreased by 0.1 percent in 2013 to 3.7 petawatt-hours. In contrast to Kentucky's manufacturing-intensive industrial electricity load, nationally, residential consumers make up the largest share of electricity demand, 38 percent in 2013. Residential, which is highly responsive to changes in weather, grew by 1.21 percent in 2013. Industrial demand fell 3.2 percent to 954 terawatt-hours.

Kentucky Generation Infrastructure

Electricity Generating Capacity

Capacity is the maximum amount of electricity that can be produced at any one moment in time and is measured in watts, or joules per second. Kentucky has 40 power plants that operate 145 individual electricity generating units. There are approximately 17 gigawatts of electric generating capacity in Kentucky that is expected to remain online through 2020. Nearly 5.4 gigawatts of coal-fired generating capacity has recently been retired, or will be retired before 2020. Of total capacity expected to be online in 2020, approximately 11 gigawatts (65 percent) are coal fired, 4.9 gigawatts (30 percent) are natural gas-fired, 824 Megawatts (4.8 percent) are hydro power, and 69 Megawatts (~0.4 percent) are biomass units.

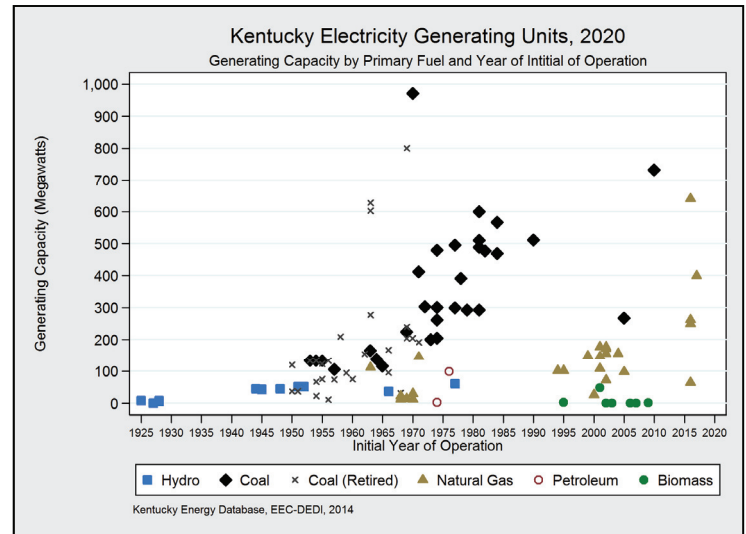
Capacity Factor

The capacity factor of a generating unit is a ratio of actual power output from a unit versus the maximum possible output from a unit over a period of time. To calculate the maximum possible output of a unit, the rated nameplate capacity (MW) is multiplied by a period of time (typically, hours per year). The actual output (MWh) is then divided by the maximum possible output (MWh) to determine the capacity factor of the unit.

Many variable factors influence the actual capacity factor of a given generating unit including: operational costs, operational design, age of a unit, emissions of criteria pollutants, electricity demand fluctuations, and the particular generation and environmental plans of individual power producers.

Generation

Of the electricity generated in Kentucky in 2013, 92.7 percent was derived through the combustion of coal. Despite an aggregate decrease in total electricity generation in 2013, the amount of coal consumed increased. Natural gas facilities were the third-largest source of electricity and were used primarily for peak load periods. Due to existing coal resources and power plant infrastructure Kentucky has consistently used coal to meet the vast majority of electricity demand within the Commonwealth.

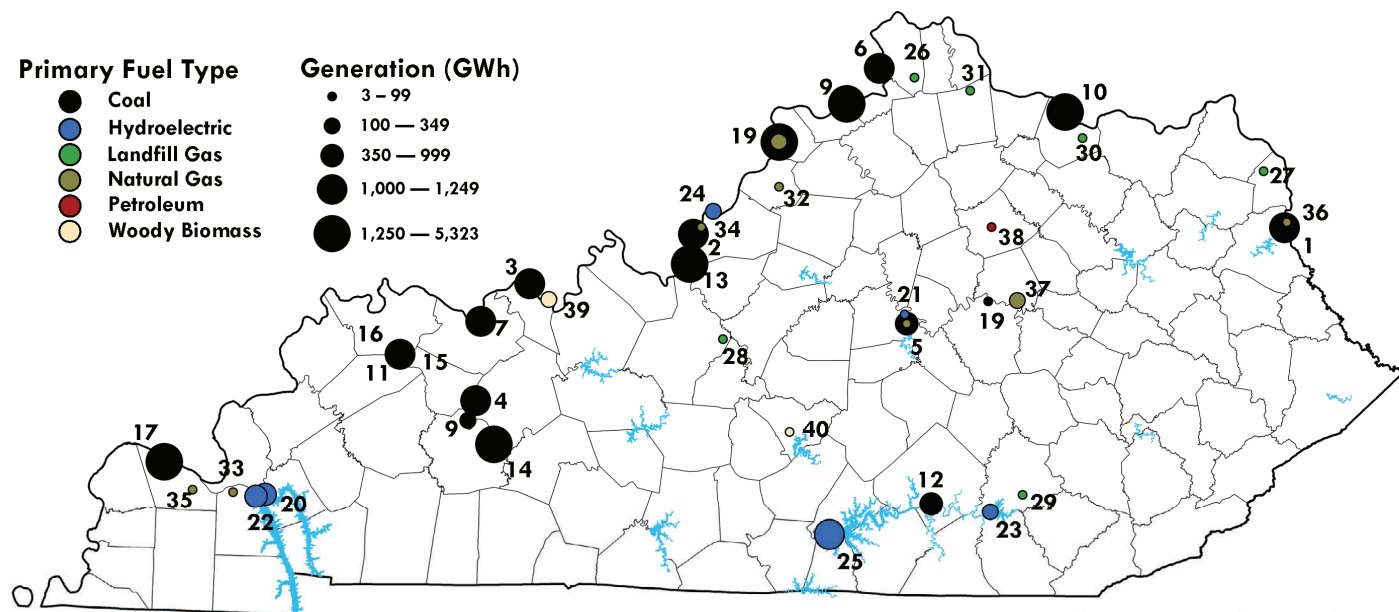


Primary Fuel	Unit Count	Average Age	Average Capacity	Total Capacity
All Active Units	145	43	127	17,052
Coal	32	45	346	11,083
Coal (Retired)	31	61	170	5,282
Natural Gas	54	25	104	4,971
Petroleum	6	55	65	105
Hydro	30	78	28	824
Biomass	23	16	3	69

Coal-fired, hydroelectric, and biomass-fired generators provide all of the baseload electricity in Kentucky because of their low operating costs. The coal fleet consists of large generators that were constructed between the mid-1950s and 2010. Most of these plants have been retrofitted with environmental controls to meet air quality emissions standards but many may need further upgrades as the standards have become more stringent. Peaking power—the additional electricity needed for short periods of high demand—is generated by natural gas and petroleum. Utilities typically satisfy these short periods of high demand (peaks) with simple cycle natural gas or petroleum generators because they are relatively cheap to build, and can rapidly power up and power down to balance electricity demand. However, peaking units have a significantly higher operating cost than baseload generators due to their operational designs, and are not optimized for baseload generation. These “peaking” generators account for approximately 24 percent of the installed generating capacity in Kentucky but provide less than 5 percent of electricity generation.

Power Plants in Kentucky

Power Plants in Kentucky, 2014



Kentucky Energy Database, EEC-DEDI, 2014

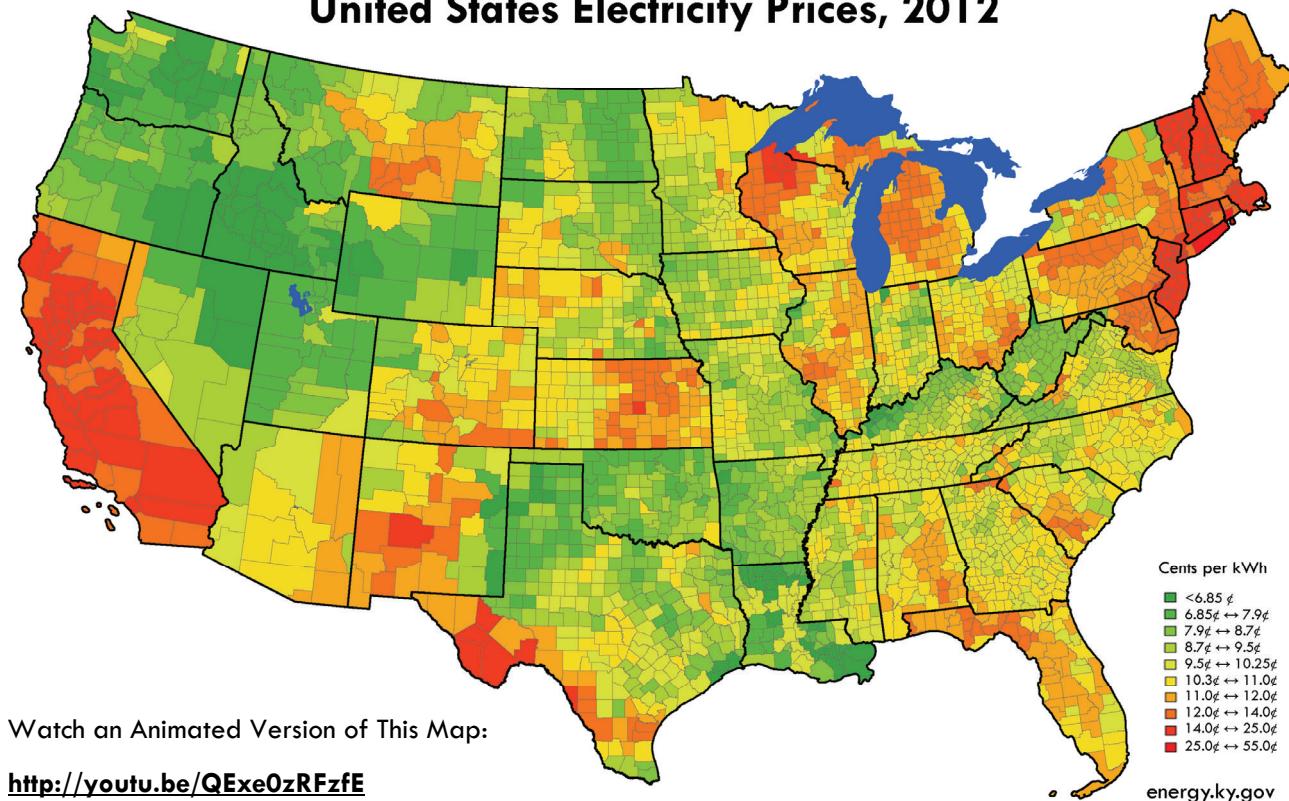
Number	Name	Initial Year of Operation	Owner	Number	Name	Initial Year of Operation	Owner
1	Big Sandy	1951	Kentucky Power	21	Dix Dam	1925	LG&E and KU
2	Cane Run	1954	LG&E and KU	22	Kentucky Dam	1948	TVA
3	Coleman	1969	Big Rivers	23	Laurel	1977	Army Corps
4	D B Wilson	1984	Big Rivers	24	Ohio Falls	1927	LG&E and KU
5	E W Brown	1957	LG&E and KU	25	Wolf Creek	1928	Army Corps
6	East Bend	1981	Duke Energy	26	Bavarian	1951	EKPC
7	Elmer Smith	1964	Owensboro	27	Green Valley	2003	EKPC
8	Ghent	1973	LG&E and KU	28	Hardin County	2003	EKPC
9	Green River	1950	LG&E and KU	29	Laurel Ridge	2006	EKPC
10	H L Spurlock	1977	EKPC	30	Mason County	2003	EKPC
11	HMP&L Station 2	1973	Henderson	31	Pendleton County	2009	EKPC
12	John S. Cooper	1965	EKPC	32	Bluegrass Gen.	2007	Bluegrass Gen.
13	Mill Creek	1972	LG&E and KU	33	Marshall	2002	TVA
14	Paradise	1963	TVA	34	Paddy's Run	1968	LG&E and KU
15	R D Green	1991	Big Rivers	35	Paducah Power	2010	Paducah Power
16	Robert Reid	1966	Big Rivers	36	Riverside Gen.	2001	Riverside Gen.
17	Shawnee	1953	TVA	37	Smith Generating	2010	EKPC
18	Trimble County	1990	LG&E and KU	38	Paris	1952	Paris
19	William C. Dale	1954	EKPC	39	Kentucky Mills	2001	Domtar Corp.
20	Barkley	1966	Army Corps	40	Cox Waste to Energy	1995	Cox Waste to Energy

Average Price of Electricity by State

Rank	State	Primary Generation Source	Percentage Coal	2013 Electricity Price (Cents per kWh)	1 Year Change	5 Year Change
1	Washington	Hydroelectric	5.7%	7.056	+1.5%	+2.0%
2	Kentucky	Coal	92.7%	7.541	+4.7%	+14.4%
3	Wyoming	Coal	89.0%	7.554	+5.3%	+27.7%
4	Idaho	Hydroelectric	0.5%	7.611	+11.7%	+25.4%
5	Oklahoma	Natural Gas	40.4%	7.806	+5.1%	-5.6%
6	Arkansas	Coal	52.1%	7.822	+3.7%	-0.7%
7	West Virginia	Coal	95.5%	7.910	-2.7%	+34.2%
8	Illinois	Nuclear	43.1%	7.990	-5.3%	-18.7%
9	Louisiana	Natural Gas	21.2%	8.002	+16.0%	-18.1%
10	Iowa	Coal	59.0%	8.118	+4.8%	+10.5%
11	Utah	Coal	80.5%	8.179	+4.3%	+19.5%
12	North Dakota	Coal	78.7%	8.193	+5.2%	+15.8%
13	Oregon	Hydroelectric	6.2%	8.387	+1.7%	+8.8%
14	Montana	Coal	54.1%	8.584	+4.4%	+5.8%
15	Indiana	Coal	84.1%	8.632	+5.6%	+15.5%
16	Nebraska	Coal	71.9%	8.690	+6.8%	+23.9%
17	Texas	Natural Gas	34.0%	8.774	+2.0%	-23.3%
18	South Dakota	Hydroelectric	28.5%	8.836	+3.7%	+16.1%
19	Missouri	Coal	83.1%	8.963	+5.8%	+23.0%
20	Virginia	Nuclear	27.6%	9.014	-0.7%	+6.2%
21	Alabama	Coal	31.7%	9.021	-1.7%	+1.2%
22	Nevada	Natural Gas	14.2%	9.041	+1.2%	-12.7%
23	South Carolina	Nuclear	25.8%	9.136	+0.9%	+9.1%
24	Mississippi	Natural Gas	16.4%	9.155	+6.9%	-2.1%
25	Ohio	Coal	69.7%	9.162	+1.2%	+3.3%
26	North Carolina	Coal	38.2%	9.175	+1.0%	+8.1%
27	Tennessee	Coal	42.4%	9.216	-0.8%	+6.5%
28	New Mexico	Coal	67.5%	9.240	+4.2%	+6.3%
29	Minnesota	Coal	45.3%	9.522	+7.8%	+15.6%
30	Georgia	Natural Gas	33.0%	9.533	+2.4%	+1.1%
31	Kansas	Coal	61.3%	9.566	+4.4%	+21.3%
32	Colorado	Coal	63.2%	9.797	+4.7%	+8.0%
33	Pennsylvania	Coal	39.6%	9.826	-0.7%	-0.1%
	United States Average	Coal	39.1%	10.082	+2.4%	-2.1%
34	Arizona	Coal	39.4%	10.160	+3.9%	+4.5%
35	Florida	Natural Gas	21.0%	10.305	-1.5%	-10.0%
36	Wisconsin	Coal	61.0%	10.635	+2.8%	+11.7%
27	Delaware	Natural Gas	20.4%	10.984	-1.3%	-15.9%
38	Michigan	Coal	54.2%	11.256	+2.7%	+18.9%
39	Maryland	Coal	44.1%	11.654	+2.8%	-15.9%
	District of Columbia	Natural Gas	0.0%	11.853	+0.1%	-15.2%
40	Maine	Natural Gas	0.4%	11.866	+0.3%	-19.6%
41	New Jersey	Nuclear	3.2%	13.701	-1.2%	-10.7%
42	Rhode Island	Natural Gas	0.0%	13.910	+8.2%	-18.5%
43	New Hampshire	Nuclear	6.8%	14.309	+0.5%	-8.4%
44	Vermont	Nuclear	0.0%	14.453	+1.3%	+9.9%
45	Massachusetts	Natural Gas	10.6%	14.507	+5.5%	-16.4%
46	California	Natural Gas	0.7%	14.568	+6.3%	+10.4%
47	New York	Natural Gas	3.5%	15.616	+3.2%	-11.6%
48	Connecticut	Nuclear	1.5%	15.682	+1.1%	-17.4%
49	Alaska	Natural Gas	8.6%	16.515	+2.1%	+6.4%
50	Hawaii	Petroleum	14.0%	33.270	-2.1%	+8.8%

Average Price of Electricity by State

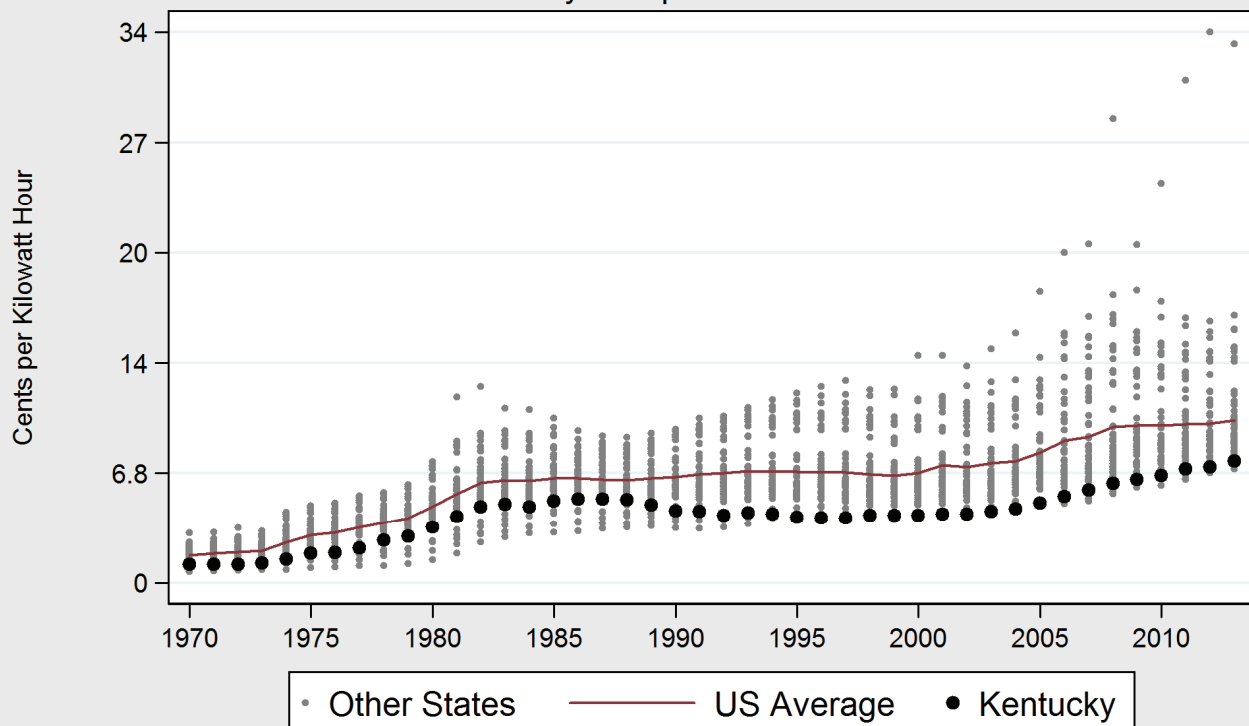
United States Electricity Prices, 2012



Watch an Animated Version of This Map:

<http://youtu.be/QExe0zRFzfE>

Kentucky Average Electricity Price, 1970-2013
Kentucky Compared to Other States

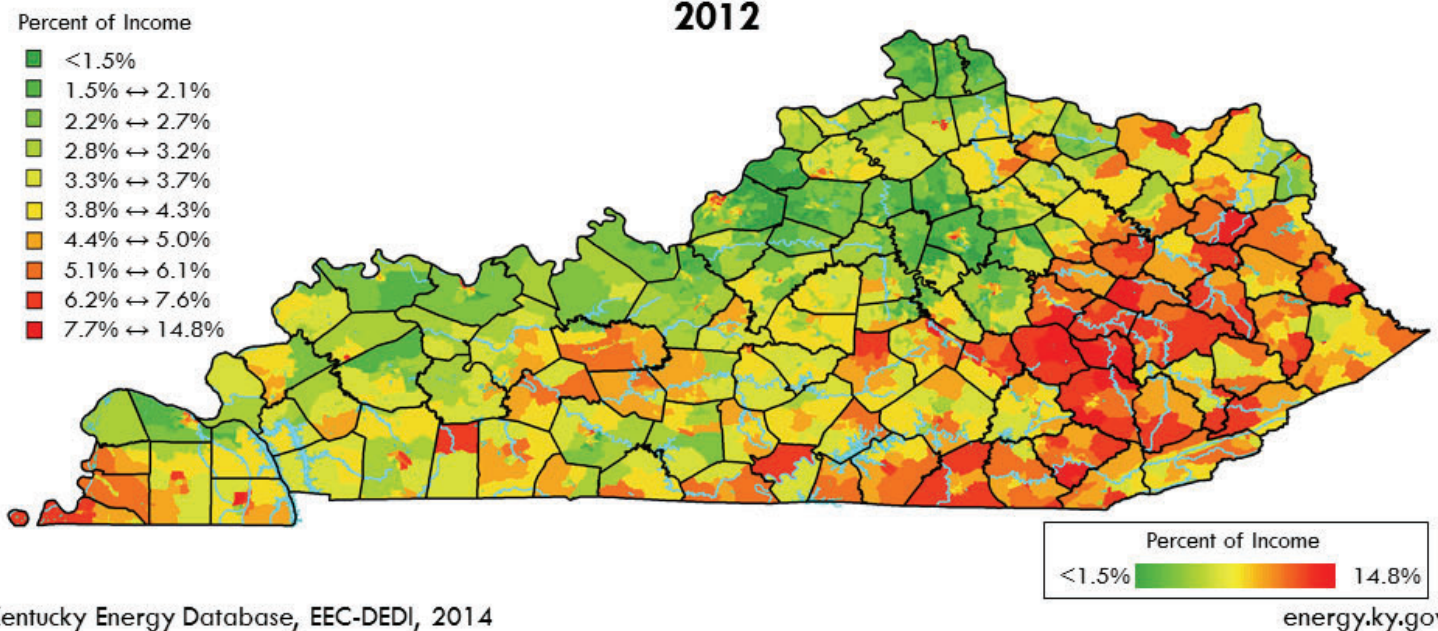


Kentucky Energy Database, EEC-DEDI, 2014

Data Source: EIA Form 861 & 826

Kentucky Electricity Expenditures

Kentucky Household Electricity Expenditures as a Percentage of Income 2012



The following maps summarize the percentage of household income that is spent on electricity within the Commonwealth of Kentucky and throughout the United States. Red areas show where average electricity expenditures represent a larger portion of household income in a given area. The maps display electricity expenditures as a percentage of household income, which combines data from the Energy Information Administration's surveys of electric utilities with median household income data from the Census Bureau's American Community Survey. The Kentucky map above varies by electric service territories and individual neighborhoods within counties while the United States maps on the adjacent page are shown by county.

As shown on page 24 and 25, Kentucky pays among the lowest for electricity in the country, but is home to some of the nation's poorest households. Electricity expenditures as a percentage of household income are more significant in rural areas and poorer urban areas such as the western part of Louisville and the northern Lexington. Additionally, southeastern Kentucky contains the largest clustering of low-income counties in the United States, five of the ten lowest in terms of median household income. Many of Kentucky's manufactured homes with electric heat are also concentrated in this area. Thirteen percent of Kentucky families live in mobile homes, which are cheaper to purchase but more costly over the long-term due to electricity costs.

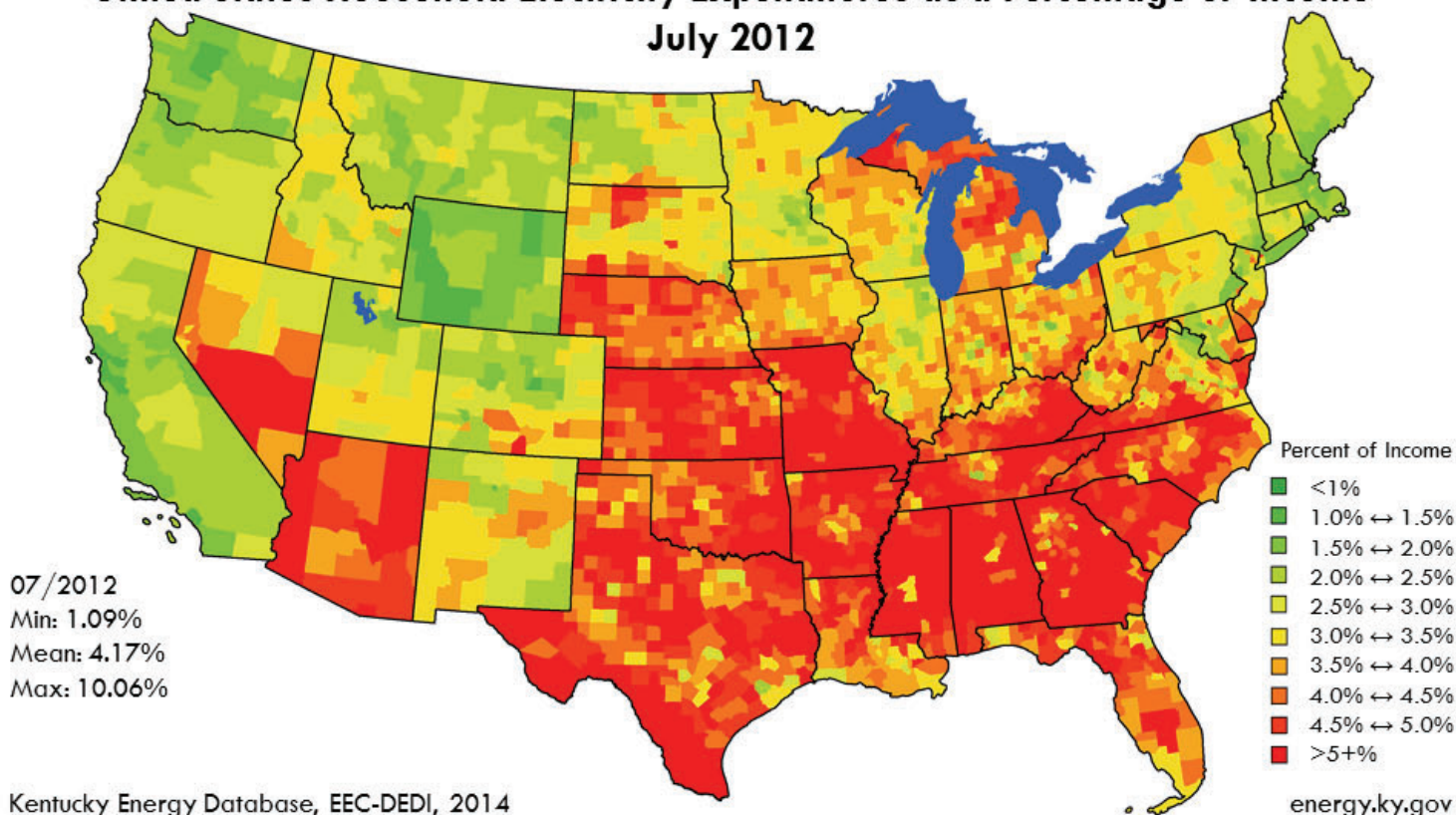
The maps on the right show 2012 July and December electricity expenditures as a percentage of household income by county throughout the United States. During summer, air conditioning requirements cause increased electricity costs that are particularly visible in poverty stricken regions of the Appalachian Mountains, the Deep South, and parts of Texas. During winter, home heating requirements increase electricity costs again across the Deep South and through the Appalachian Mountains where there are many manufactured homes and where electricity is the primary method of home heating. Regardless of the season, higher income metropolitan areas in otherwise relatively rural states across the south appear to be sheltered from seasonal weather trends, including central Kentucky, Nashville, Memphis, Atlanta, Raleigh, Charlotte, and Birmingham. Winter electricity intensity is lower in New England, where the primary method of home heating is fuel oil. Likewise, in the upper Midwest, winter electricity intensity is lower because the primary heating source is natural gas.

Electricity expenditure data were collected by electric service provider by the Energy Information Administration in Form 826 and 861, median household income data collected by the Census Bureau American Community Survey. Residential electricity bills vary with electricity prices, weather, housing quality, home size, occupancy, usage, and method of home heating. Household expenditures for direct heating with fossil fuels such as natural gas, propane, or others are not reflected in these data.

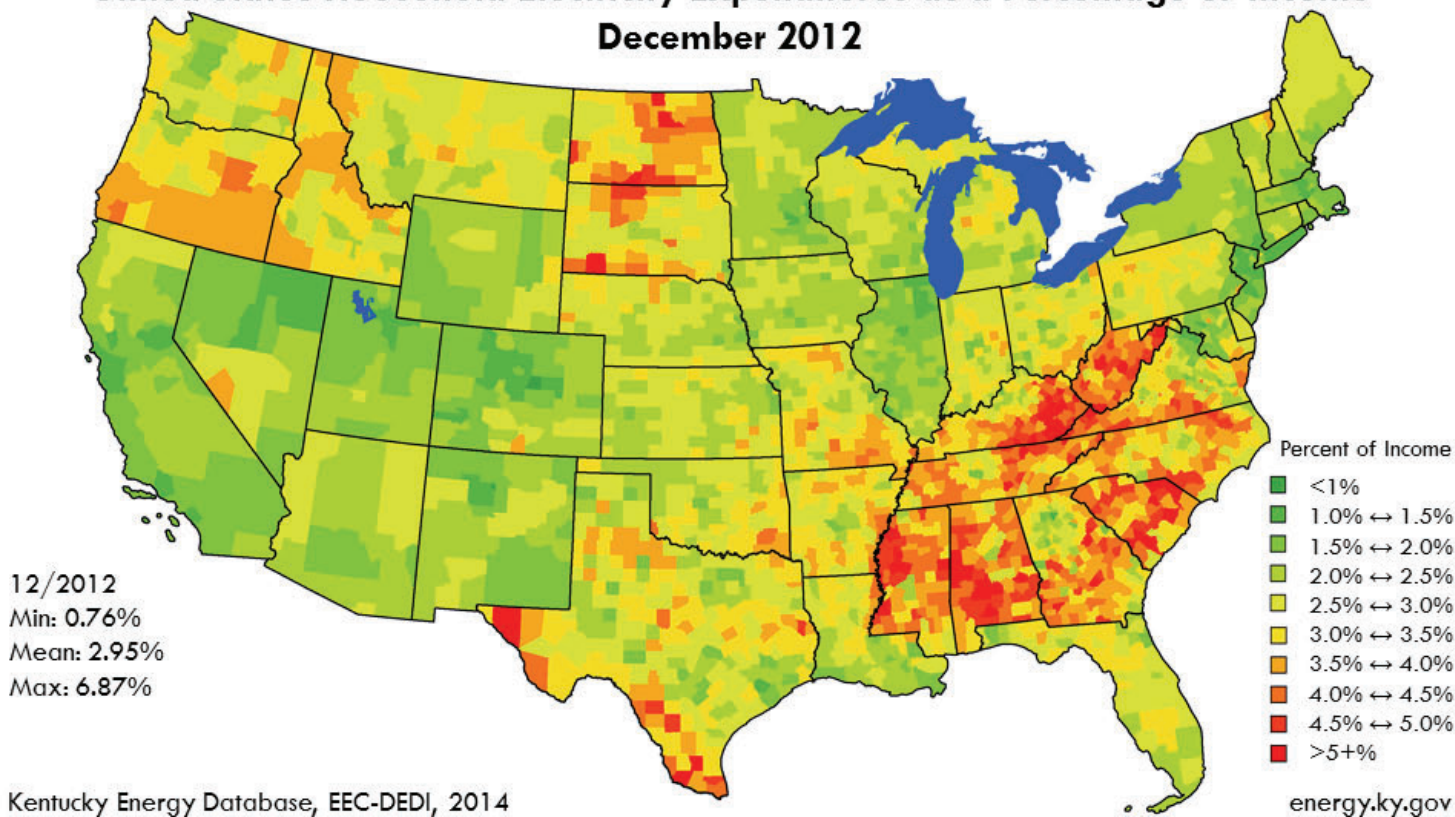
Download Detailed Maps: <http://1.usa.gov/1rFQ1xh> Watch Animated Version of Maps: <http://youtu.be/mGI1DKJCaSA>

United States Electricity Expenditures

United States Household Electricity Expenditures as a Percentage of Income
July 2012

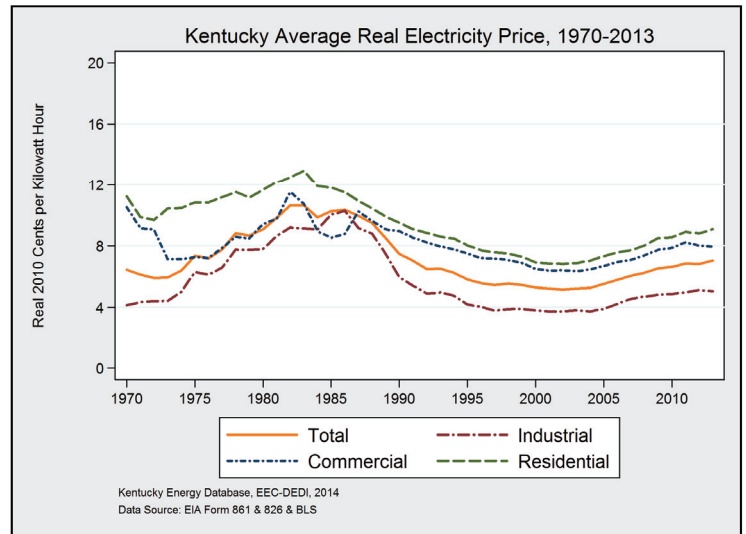
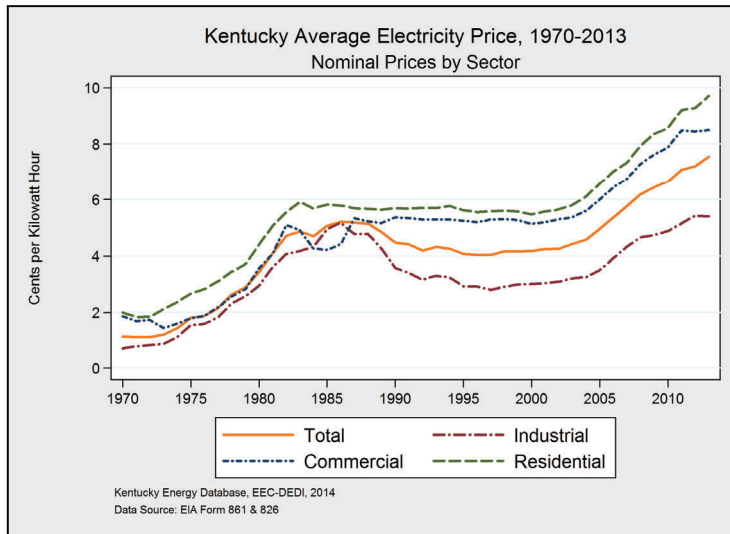


United States Household Electricity Expenditures as a Percentage of Income
December 2012



Download Detailed Maps: <http://1.usa.gov/1rFQ1xh> Watch Animated Version of Maps: <http://youtu.be/mGI1DKJCaSA>

Kentucky Electricity Prices



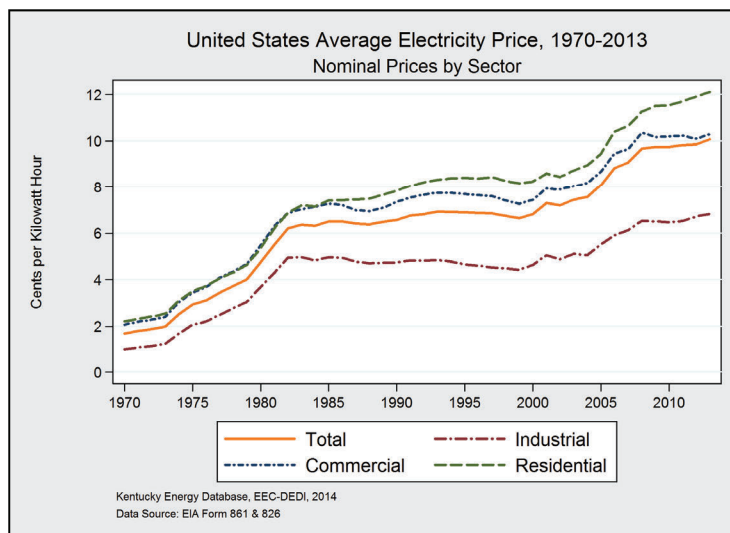
Sector	Nominal Cents/kWh	Since 2000
Average	7.54¢	+81.8%
Residential	9.71¢	+77.5%
Commercial	8.50¢	+65.3%
Industrial	5.40¢	+79.3%

Sector	Real* Cents/kWh	Since 2000
Average	7.16¢	+35.2%
Residential	9.22¢	+33.1%
Commercial	8.07¢	+24.0%
Industrial	5.13¢	+34.5%

*Real 2010 U.S.\$

In 2013, the average price of electricity across economic sectors in Kentucky was 7.54¢ per kilowatt-hour. This average price ranked Kentucky electricity prices the second-lowest in the country. The residential sector paid the highest price for electricity at 9.71¢ per kilowatt-hour, followed by the commercial sector at 8.50¢ per-kilowatt hour, and the industrial sector at 5.40¢ per kilowatt-hour. Since 2000, the average price of electricity in Kentucky has risen by 82 percent.

Adjusting for inflation, the trends of electricity prices in Kentucky between 1970 and 2013 is notably different from the adjacent, nominal graphic. In inflation-adjusted 2010 dollars, the price of electricity in Kentucky actually decreased from 1980 through 2002. Since 2002, however, the real price of electricity in Kentucky in inflation-adjusted dollars has been increasing.



Since 1970, the average price of electricity in Kentucky has been among the lowest in the United States and well below the national average. During this period, Kentucky electricity prices have always been among the eight-lowest and within the five-lowest since 1992. Though the state with the lowest average price of electricity fluctuates year-to-year, states with predominately coal-fired or hydroelectric portfolios have traditionally maintained the lowest prices of electricity in the United States.

Electricity Service & Rates

Retail Service:

Electricity in Kentucky is provided to customers by one of the following types of entities that has the exclusive right to serve the customers within its territory:

- Retail electric suppliers that are regulated by the Kentucky Public Service Commission (PSC), which include:
 1. Investor-Owned Utilities (IOUs)
 2. Rural Electric Cooperative Companies (RECCs)
- Municipal Utilities
- The Tennessee Valley Authority (TVA) and its associated distributors within the state

Electric suppliers that are regulated by the PSC fall into two categories: IOUs and RECCs. There are four investor-owned companies in Kentucky: Duke Energy Kentucky, Kentucky Power Company (aka. AEP), Kentucky Utilities (KU), and Louisville Gas and Electric (LG&E). Each of these companies generates or purchases the power required to meet its respective customers' electricity demands. RECCs are owned by their individual ratepayers and are non-profit entities that reinvest profits into energy infrastructure or are returned to ratepayers.

There are 19 RECCs that are regulated by the PSC. Sixteen of these jointly own and purchase power from East Kentucky Power Cooperative (EKPC) and the remaining three jointly own and purchase power from Big Rivers Electric Corporation (BREC). A "distribution" cooperative typically receives power from its respective "generation and transmission" cooperative at a substation in the distributor's service territory.

Eighteen municipal electric suppliers purchase power from various sources or self-generate electricity by owning and/or operating generating facilities. In the case of purchased power, a municipality may negotiate a guaranteed delivery of electricity from an investor owned utility or independent power producer, or purchase electricity on the market for distribution within its service area.

Five RECCs and ten municipal utilities purchase electricity from TVA. These RECCs and municipalities then resell and distribute electricity to customers within their service territories. TVA also directly serves several large industrial customers within Kentucky.

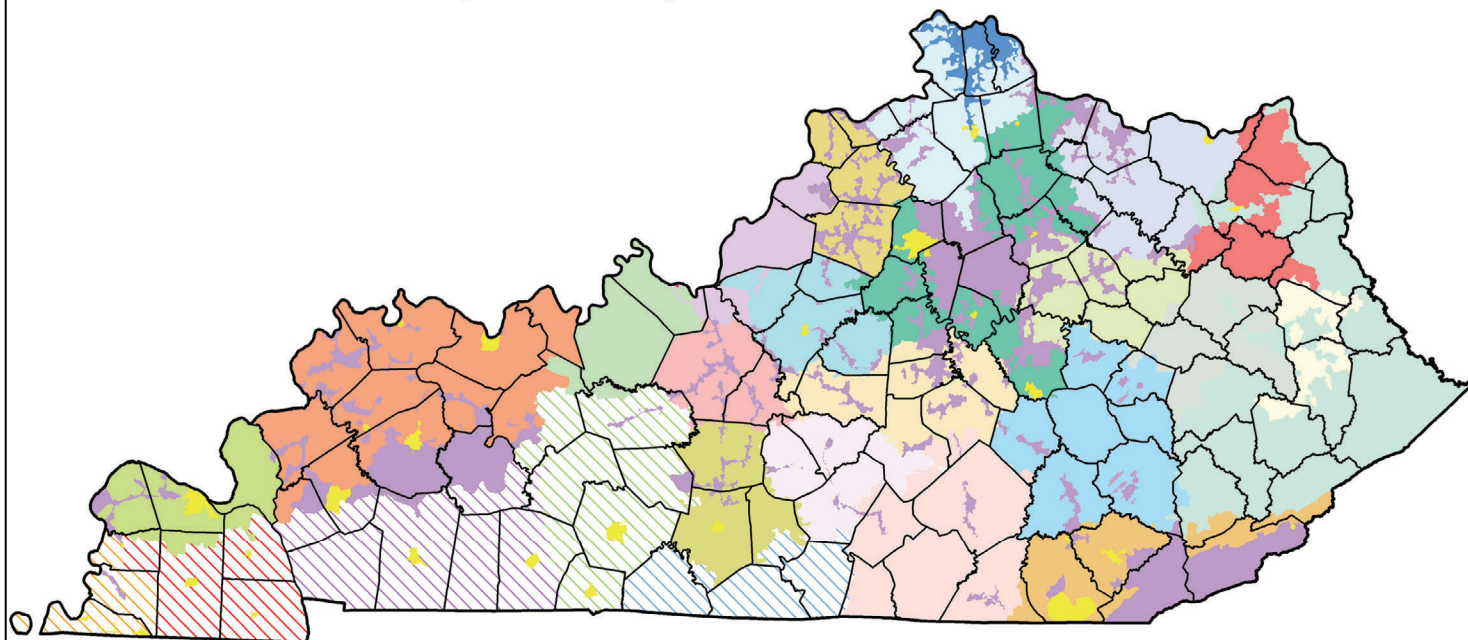
Electricity Rates:

Retail electricity rates are set by either the PSC, the owner or board governing a municipal utility, or TVA.* Rates are generally established to cover the operating expenses and the capital costs of the utilities to maintain generation infrastructure and supply electricity. Operating expenses typically include personnel costs, fuel costs, generation costs, and maintenance costs. Capital costs typically include the costs to construct facilities, environmental equipment, and transmission lines, service the outstanding interest on debt, and earn a scheduled return on equity. The particular authority that sets a rate endeavors to ensure that these costs are fair, just, and reasonable.

*The Tennessee Valley Authority sets the wholesale rate for electricity supplied to its distributors, and approves the distributors' retail rate.

Kentucky Electric Service Areas

Kentucky Electricity Service Territories, 2014



Explore Interactive Version of this Map Online: <http://bit.ly/1rIAoHK>

Kentucky Public Service Commission, 2014

All Municipal Utilities		Kentucky Utilities*	
Big Sandy RECC†		Licking Valley RECC†	
Blue Grass ECC†		Louisville Gas & Electric*	
Clark ECC†		Meade County RECC‡	
Cumberland Valley RECC†		Nolin RECC†	
Duke Energy Kentucky*		Owen ECC†	
Farmers RECC†		Pennyriple RECC§	
Fleming-Mason ECC†		Salt River ECC†	
Grayson RECC†		Shelby ECC†	
Hickman-Fulton Counties RECC§		South Kentucky RECC†	
Inter-County ECC†		Taylor County RECC†	
Jackson ECC†		Tri-County Electric Member Corporation§	
Jackson Purchase Energy Corporation ‡		Warren RECC§	
Kenergy Corporation‡		West Kentucky RECC§	
Kentucky Power*			

The Commonwealth of Kentucky is divided into certified electric service territories as determined by the Kentucky Public Service Commission (KRS 278.016). Within these certified electric service areas, electricity service and delivery is restricted to one electricity provider per service area. Providers of electricity in Kentucky are either Investor-Owned Utilities (IOU), Municipal Utilities, or Rural Electric Cooperative Corporations (RECC). Municipal Utilities and TVA Distributors are not subject to Kentucky Public Service Commission regulation.

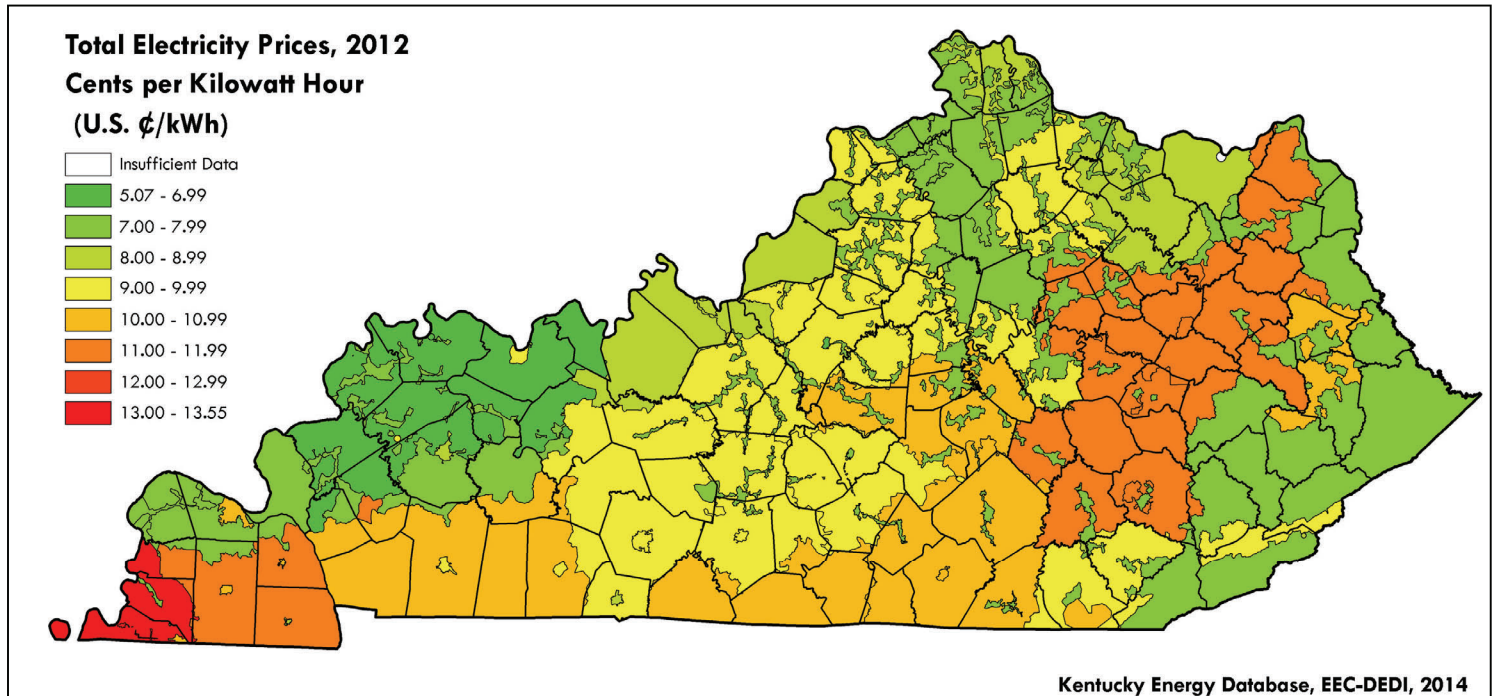
*Investor-Owned Utilities

†EKPC Owner-Member Cooperative

‡BREC Member Cooperative

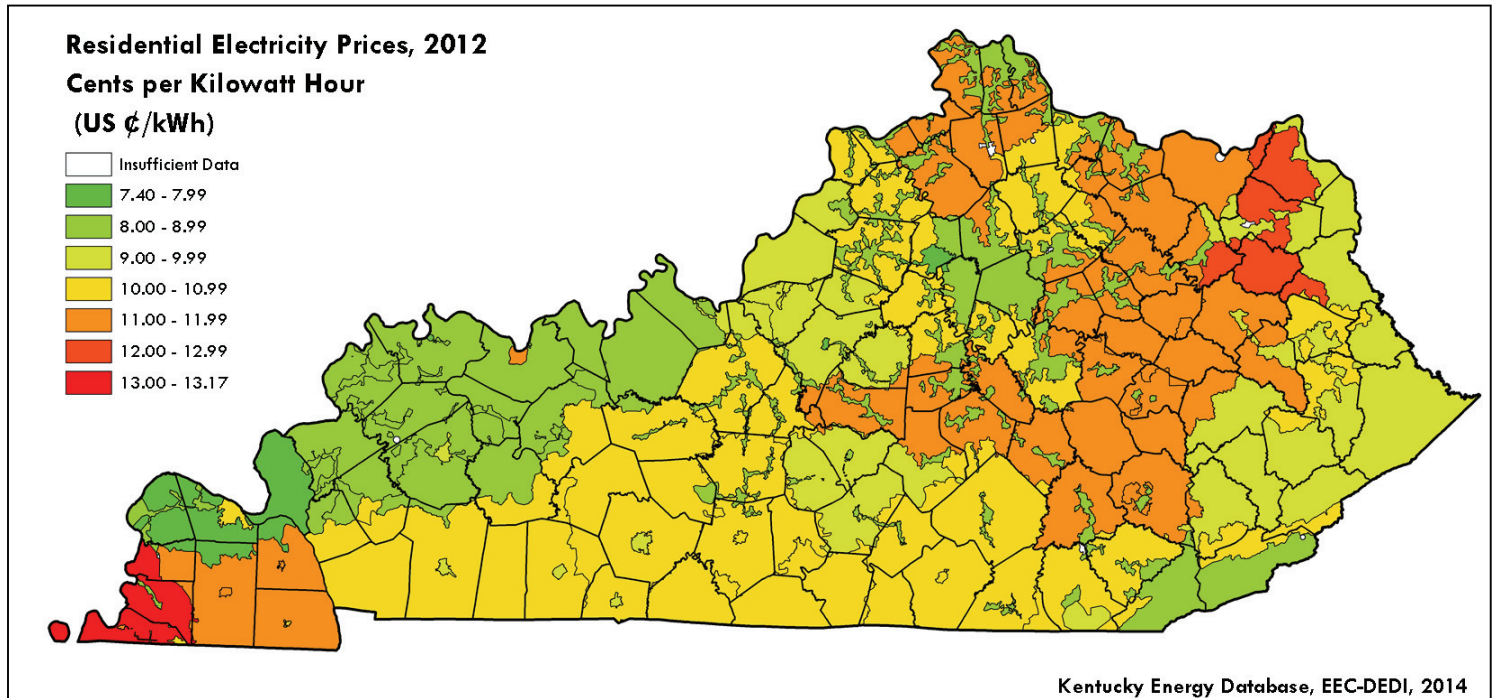
§TVA Distributor

Total Electricity Prices, 2012



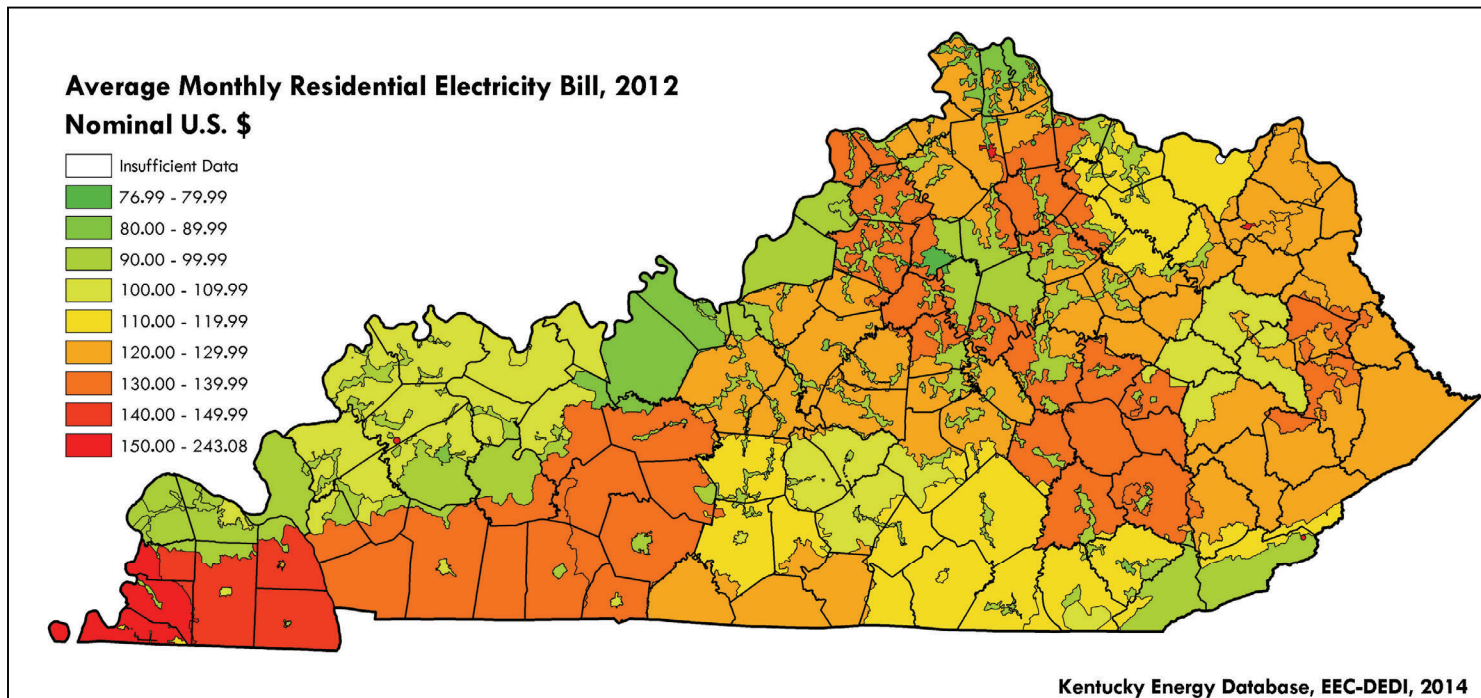
Kenergy Corp.	5.07¢	Nolin R.E.C.C.	9.28¢
City of Bardstown	5.82¢	Cumberland Valley R.E.C.C.	9.56¢
City of Henderson	6.36¢	City of Glasgow	9.60¢
City of Nicholasville	7.08¢	City of Providence	9.60¢
City of Frankfort	7.16¢	City of Russellville	9.60¢
Kentucky Utilities	7.16¢	Taylor County R.E.C.C.	9.64¢
Jackson Purchase Energy Corp.	7.37¢	Warren R.E.C.C.	9.69¢
City of Falmouth	7.46¢	Blue Grass E.C.C.	9.87¢
Kentucky Power	7.52¢	City of Owensboro	9.87¢
Owen E.C.C.	7.67¢	Farmers R.E.C.C.	9.93¢
City of Barbourville	7.76¢	Pennyryle R.E.C.C.	10.15¢
City of Berea	7.77¢	City of Fulton	10.15¢
Meade County R.E.C.C.	8.02¢	South Kentucky R.E.C.C.	10.18¢
Duke Energy Kentucky, Inc.	8.09¢	City of Paducah	10.22¢
Louisville Gas & Electric	8.09¢	City of Jellico	10.23¢
Corbin City Utilities Commission	8.10¢	Tri-County Electric Member Corp.	10.43¢
City of Franklin	8.28¢	Big Sandy R.E.C.C.	10.57¢
Fleming-Mason E.C.C.	8.30¢	City of Benton	10.57¢
City of Paris	8.33¢	Inter County E.C.C.	10.74¢
City of Madisonville	8.34¢	Mayfield Plant Board	10.82¢
City of Murray	8.95¢	City of Princeton	11.11¢
City of Benham	8.52¢	City of Olive Hill	11.11¢
City of Bardwell	8.56¢	Licking Valley R.E.C.C.	11.16¢
Williamstown Utility Commission	8.71¢	Jackson E.C.C.	11.22¢
City of Murray	9.00¢	Clark E.C.C.	11.26¢
Salt River E.C.C.	9.06¢	West Kentucky R.E.C.C.	11.53¢
Shelby Energy Co-op, Inc.	9.18¢	Grayson R.E.C.C.	11.65¢
City of Hopkinsville	9.19¢	City of Hickman	13.00¢
City of Bowling Green	9.27¢	Hickman-Fulton Counties R.E.C.C.	13.55¢

Residential Electricity Prices, 2012



City of Benham	6.61¢	City of Jellico	9.94¢
Williamstown Utility Commission	6.93¢	City of Paducah	10.04¢
City of Falmouth	7.18¢	Cumberland Valley R.E.C.C.	10.12¢
City of Corbin	7.33¢	Nolin R.E.C.C.	10.30¢
City of Frankfort	7.40¢	City of Murray	10.41¢
City of Nicholasville	7.57¢	Warren R.E.C.C.	10.46¢
City of Bardwell	7.75¢	Tri-County Electric Member Corp.	10.49¢
City of Bardstown	7.83¢	City of Glasgow	10.62¢
Jackson Purchase Energy Corp.	7.84¢	Farmers R.E.C.C.	10.73¢
City of Henderson	7.89¢	South Kentucky R.E.C.C.	10.74¢
Meade County R.E.C.C.	8.02¢	Shelby Energy Co-op, Inc.	10.85¢
Kenergy Corp.	8.03¢	Blue Grass E.C.C.	10.86¢
City of Berea	8.21¢	Pennyriple R.E.C.C.	10.88¢
Kentucky Utilities	8.24¢	City of Fulton	10.89¢
City of Olive Hill	8.25¢	City of Princeton	10.89¢
City of Providence	8.32¢	Big Sandy R.E.C.C.	10.94¢
City of Barbourville	8.58¢	Fleming-Mason E.C.C.	11.05¢
City of Vanceburg	8.68¢	City of Benton	11.05¢
Duke Energy Kentucky, Inc.	8.76¢	Owen E.C.C.	11.09¢
City of Paris	8.88¢	Inter County E.C.C.	11.26¢
Louisville Gas & Electric	9.00¢	Clark E.C.C.	11.37¢
Kentucky Power	9.18¢	Licking Valley R.E.C.C.	11.43¢
City of Madisonville	9.36¢	Mayfield Plant Board	11.45¢
Salt River E.C.C.	9.57¢	West Kentucky R.E.C.C.	11.71¢
City of Franklin	9.84¢	Jackson E.C.C.	11.73¢
City of Russellville	9.86¢	City of Hickman	11.80¢
City of Hopkinsville	9.87¢	City of Owensboro	11.88¢
Taylor County R.E.C.C.	9.87¢	Grayson R.E.C.C.	12.61¢
City of Bowling Green	9.94¢	Hickman-Fulton Counties R.E.C.C.	13.17¢

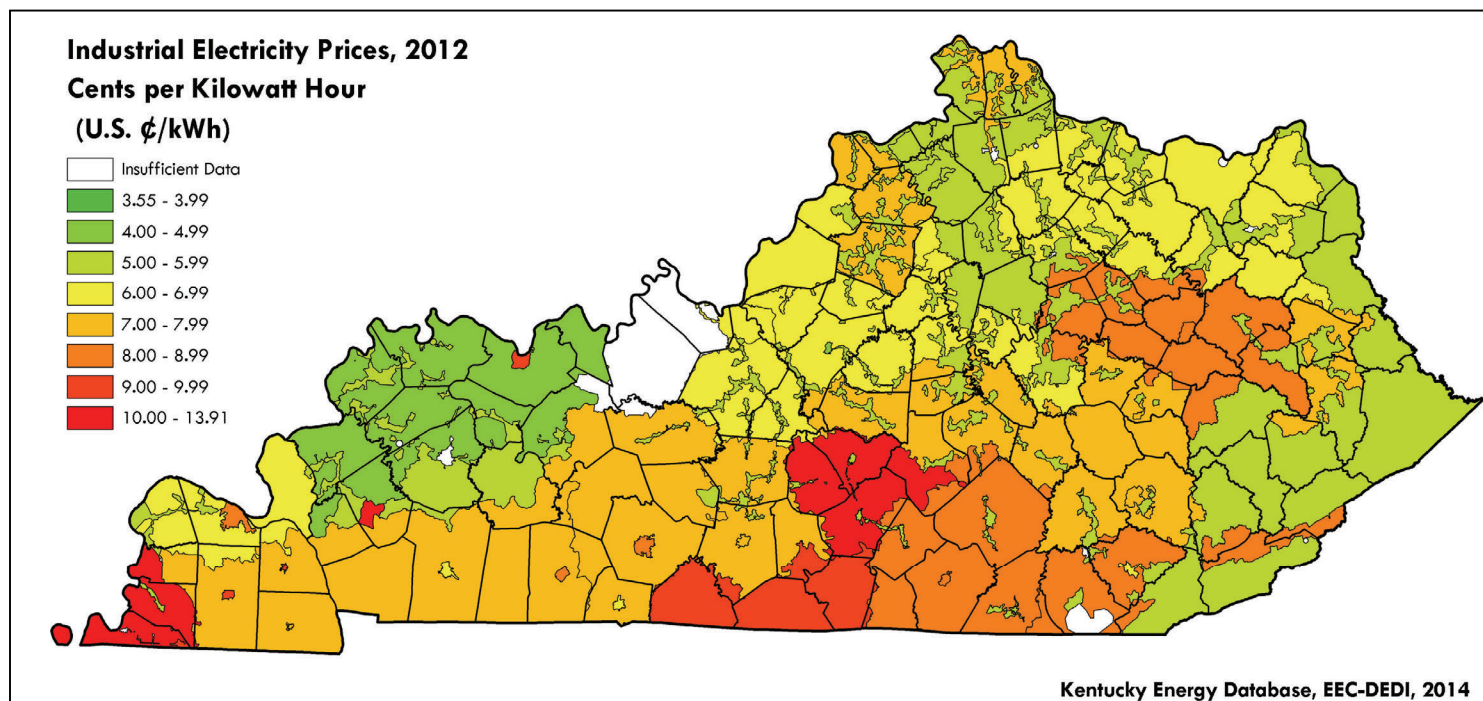
Residential Electricity Bills, 2012



City of Falmouth	\$76.99	South Kentucky R.E.C.C.	\$111.06
City of Frankfort	\$77.53	Fleming-Mason E.C.C.	\$111.77
City of Nicholasville	\$80.79	City of Fulton	\$112.08
City of Bardstown	\$85.41	Farmers R.E.C.C.	\$113.83
Meade County R.E.C.C.	\$87.00	Cumberland Valley R.E.C.C.	\$114.93
City of Madisonville	\$87.10	City of Hickman	\$115.56
Duke Energy Kentucky, Inc.	\$88.04	City of Corbin	\$118.91
City of Barbourville	\$88.58	Owen E.C.C.	\$120.29
City of Berea	\$91.88	Tri-County Electric Member Corp.	\$121.07
Louisville Gas & Electric	\$92.16	Clark E.C.C.	\$121.25
City of Russellville	\$93.09	Kentucky Power	\$121.69
City of Bowling Green	\$93.49	Salt River E.C.C.	\$121.92
City of Henderson	\$96.33	Nolin R.E.C.C.	\$126.44
Kentucky Utilities	\$97.42	City of Paris	\$127.03
City of Murray	\$99.10	Grayson R.E.C.C.	\$128.06
Jackson Purchase Energy Corp.	\$99.71	Inter County E.C.C.	\$128.21
City of Owensboro	\$102.33	Big Sandy R.E.C.C.	\$130.36
City of Franklin	\$104.30	Blue Grass E.C.C.	\$130.74
Taylor County R.E.C.C.	\$104.44	Pennyrile R.E.C.C.	\$131.55
City of Paducah	\$104.94	Shelby Energy Co-op, Inc.	\$133.43
City of Hopkinsville	\$105.32	Jackson E.C.C.	\$136.13
Kenergy Corp.	\$107.04	Warren R.E.C.C.	\$136.37
City of Princeton	\$107.36	West Kentucky R.E.C.C.	\$141.77
City of Bardwell	\$107.53	City of Benham	\$150.71
Mayfield Plant Board	\$107.55	Hickman-Fulton Counties R.E.C.C.	\$156.44
City of Jellico	\$108.36	City of Olive Hill	\$158.20
Licking Valley R.E.C.C.	\$109.32	City of Providence	\$161.23
City of Glasgow	\$109.45	Williamstown Utility Commission	\$243.08

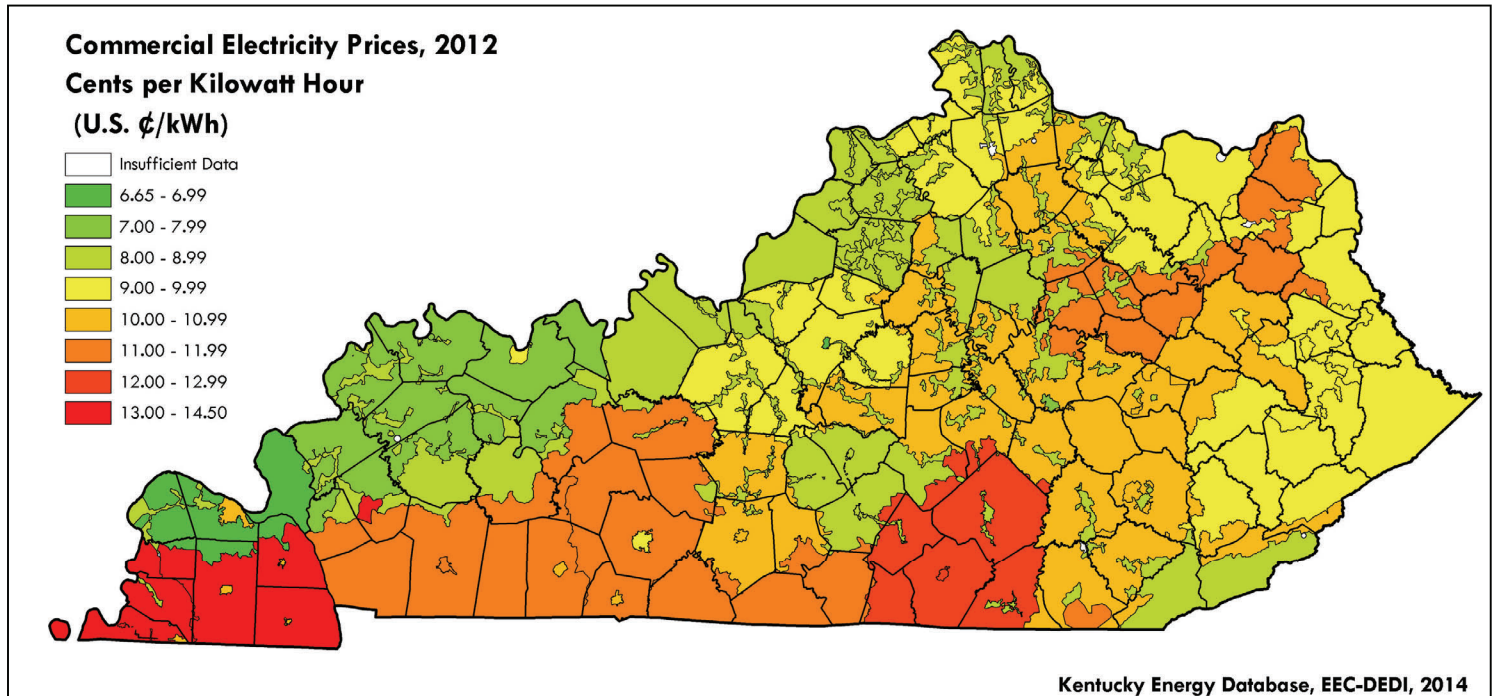
This table shows annual average monthly electricity bills by utility. Residential electricity bills actually vary by household and month not only with electricity prices, but also weather, housing quality, house size, method of home heating, occupancy, and personal usage.

Industrial Electricity Prices, 2012



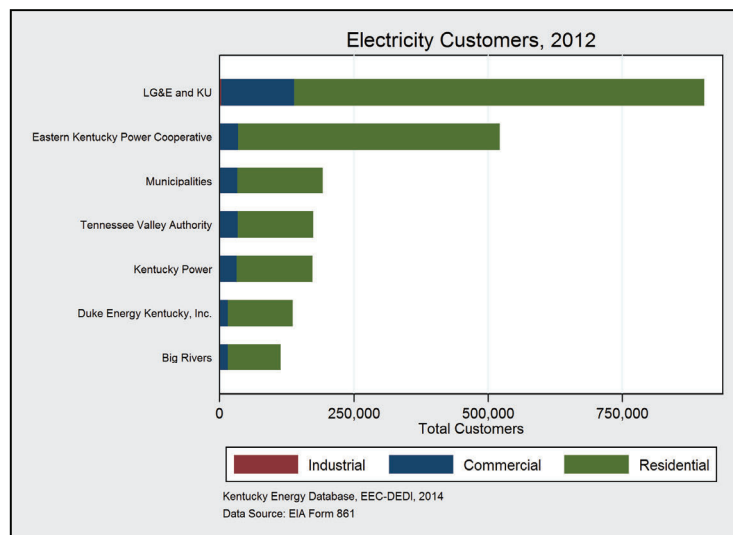
City of Bardstown	4.39¢	Jackson E.C.C.	7.21¢
City of Corbin	4.51¢	City of Murray	7.25¢
Kenergy Corp.	4.73¢	Big Sandy R.E.C.C.	7.33¢
Williamstown Utility Commission	5.04¢	West Kentucky R.E.C.C.	7.52¢
City of Henderson	5.17¢	Farmers R.E.C.C.	7.58¢
Owen E.C.C.	5.28¢	Pennyryle R.E.C.C.	7.79¢
City of Paris	5.40¢	City of Glasgow	7.92¢
Kentucky Utilities	5.43¢	Warren R.E.C.C.	7.97¢
Kentucky Power	5.49¢	Licking Valley R.E.C.C.	8.09¢
City of Hopkinsville	6.06¢	City of Bowling Green	8.10¢
Nolin R.E.C.C.	6.12¢	Cumberland Valley R.E.C.C.	8.16¢
Louisville Gas & Electric	6.17¢	City of Paducah	8.24¢
Jackson Purchase Energy Corp.	6.26¢	South Kentucky R.E.C.C.	8.52¢
City of Nicholasville	6.35¢	City of Vanceburg	8.58¢
Fleming-Mason E.C.C.	6.36¢	Clark E.C.C.	8.73¢
City of Frankfort	6.71¢	City of Russellville	8.91¢
Blue Grass E.C.C.	6.75¢	City of Benton	9.03¢
Grayson R.E.C.C.	6.77¢	City of Fulton	9.06¢
Salt River E.C.C.	6.85¢	Tri-County Electric Member Corp.	9.08¢
City of Barbourville	6.91¢	City of Owensboro	9.11¢
City of Franklin	6.95¢	Mayfield Plant Board	9.39¢
Duke Energy Kentucky, Inc.	6.99¢	City of Princeton	10.90¢
Shelby Energy Co-op, Inc.	7.01¢	Taylor County R.E.C.C.	10.96¢
City of Berea	7.04¢	Hickman-Fulton Counties R.E.C.C.	13.91¢
Inter County E.C.C.	7.12¢		

Commercial Electricity Prices, 2012

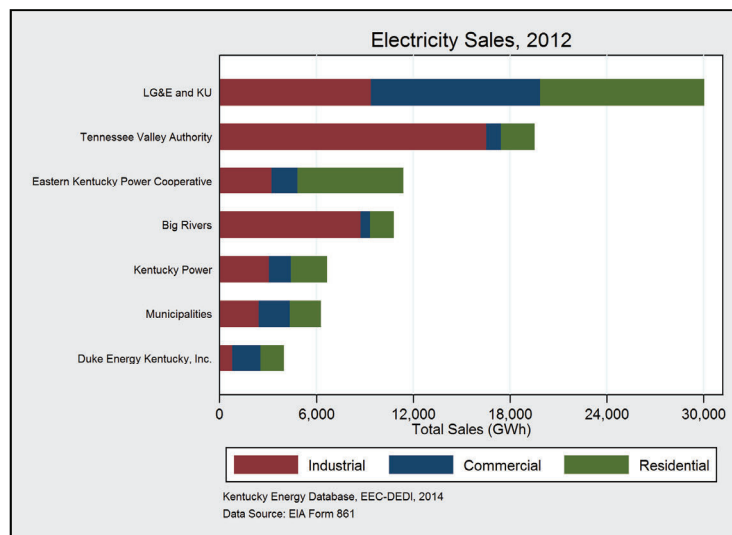


City of Benham	6.34¢	City of Bowling Green	9.51¢
Jackson Purchase Energy Corp.	6.65¢	Nolin R.E.C.C.	9.83¢
City of Bardstown	6.81¢	Big Sandy R.E.C.C.	9.92¢
City of Paris	7.16¢	Farmers R.E.C.C.	9.99¢
City of Falmouth	7.64¢	City of Franklin	10.00¢
City of Providence	7.67¢	Blue Grass E.C.C.	10.30¢
City of Corbin	7.71¢	City of Paducah	10.44¢
City of Henderson	7.73¢	City of Fulton	10.44¢
Kenergy Corp.	7.73¢	City of Russellville	10.45¢
City of Berea	7.90¢	Jackson E.C.C.	10.53¢
City of Madisonville	7.98¢	City of Glasgow	10.55¢
Duke Energy Kentucky, Inc.	8.01¢	Inter County E.C.C.	10.66¢
Meade County R.E.C.C.	8.02¢	City of Benton	10.68¢
Kentucky Utilities	8.09¢	City of Murray	10.69¢
City of Bardwell	8.22¢	Mayfield Plant Board	10.77¢
City of Nicholasville	8.30¢	Cumberland Valley R.E.C.C.	10.92¢
Louisville Gas & Electric	8.34¢	Licking Valley R.E.C.C.	10.94¢
City of Frankfort	8.35¢	Grayson R.E.C.C.	11.10¢
City of Barbourville	8.36¢	Warren R.E.C.C.	11.15¢
Williamstown Utility Commission	8.45¢	Tri-County Electric Member Corp.	11.21¢
City of Vanceburg	8.69¢	Clark E.C.C.	11.23¢
Taylor County R.E.C.C.	8.96¢	City of Hopkinsville	11.27¢
Shelby Energy Co-op, Inc.	8.96¢	City of Jellico	11.61¢
City of Olive Hill	9.26¢	Pennyryle R.E.C.C.	11.75¢
Fleming-Mason E.C.C.	9.29¢	South Kentucky R.E.C.C.	12.43¢
City of Owensboro	9.29¢	City of Princeton	13.09¢
Salt River E.C.C.	9.34¢	West Kentucky R.E.C.C.	13.28¢
Kentucky Power	9.36¢	Hickman-Fulton Counties R.E.C.C.	13.96¢
Owen E.C.C.	9.38¢	City of Hickman	14.49¢

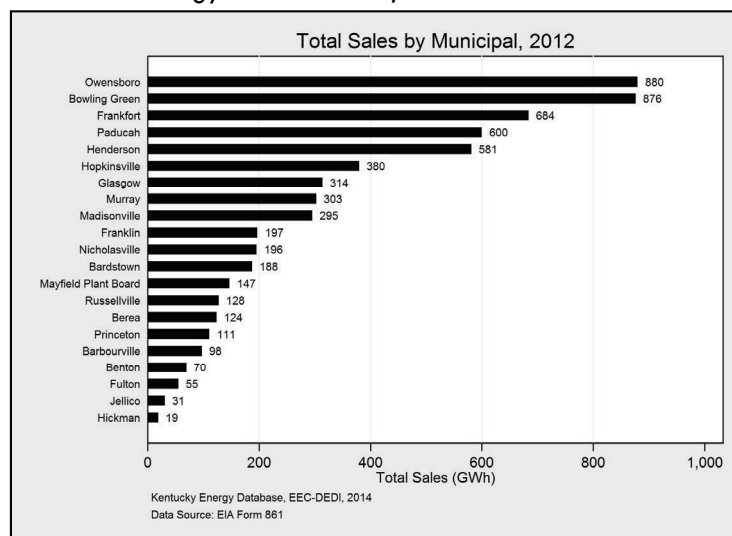
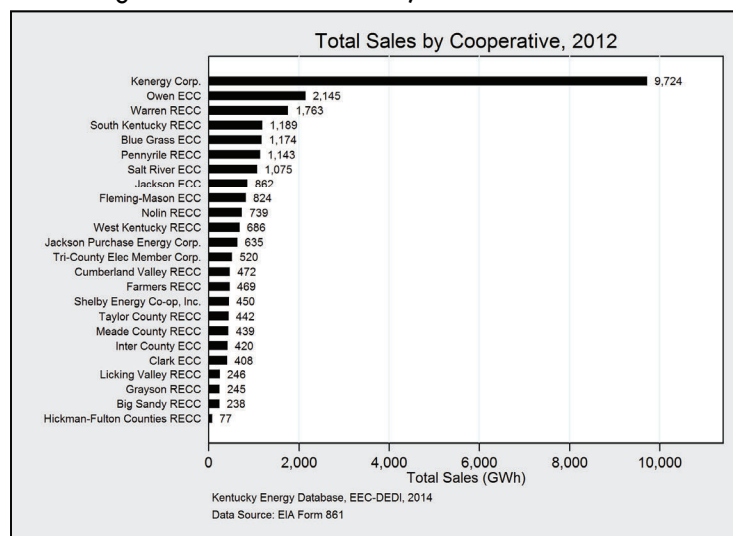
Electricity Utilities in Kentucky



Entity	Sales (GWh)	Percentage
Total	2,213,888	100%
LG&E and KU	902,973	40.8%
EKPC	521,748	23.6%
Municipalities	192,415	8.7%
TVA	174,269	7.9%
Kentucky Power	172,757	7.8%
Duke Energy	136,377	6.2%
Big Rivers	113,349	5.1%



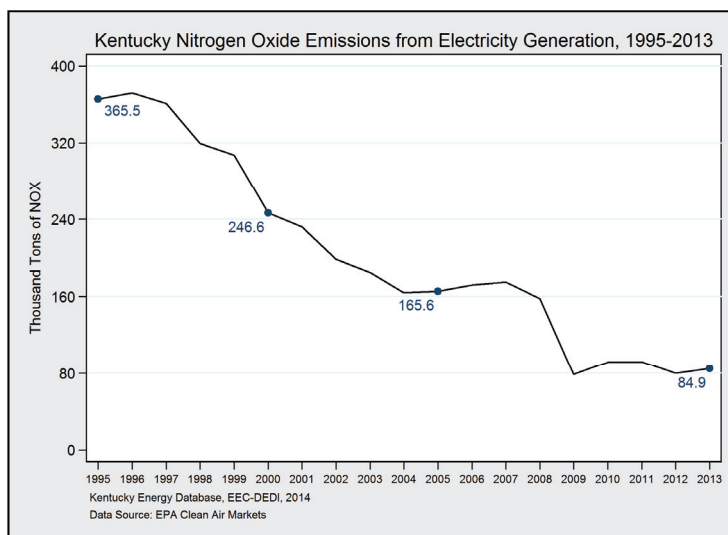
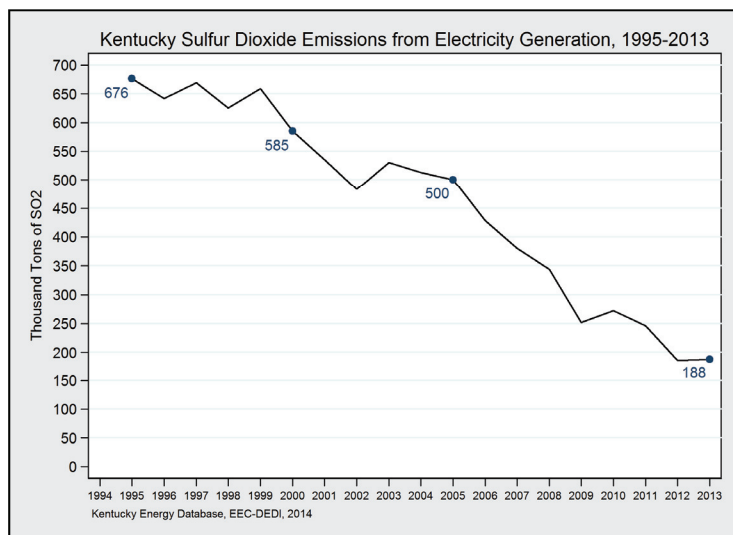
Entity	Sales (GWh)	Percentage
Total	88,705	100%
LG&E and KU	30,046	33.9%
TVA	19,527	22.0%
EKPC	11,399	12.9%
Big Rivers	10,798	12.2%
Kentucky Power	6,661	7.5%
Municipalities	6,275	7.1%
Duke Energy	3,999	4.5%



Utilities in Kentucky sold 88.7 TWh to 2.2 million consumers in 2012. Households accounted for 86 percent of consumers, but are 29 percent of consumption. The 7,134 industrial firms make up less than 1 percent of total customers, but used half of all electricity consumed in Kentucky in 2010. LG&E and KU sell to 41 percent of consumers in the Commonwealth, while East Kentucky Power Cooperative sells to 24 percent, and the rest 35 percent.

All of the sales from the Big Rivers Electric Corporation, and East Kentucky Power Cooperative and the majority from the Tennessee Valley Authority's are to RECCs and municipalities. Together, cooperatives consume more than all investor-owned corporations except LG&E and KU. Kenergy Corporation, a cooperative, sells 11 percent of Kentucky's total—more electricity than Kentucky Power, all municipalities, and Duke Energy.

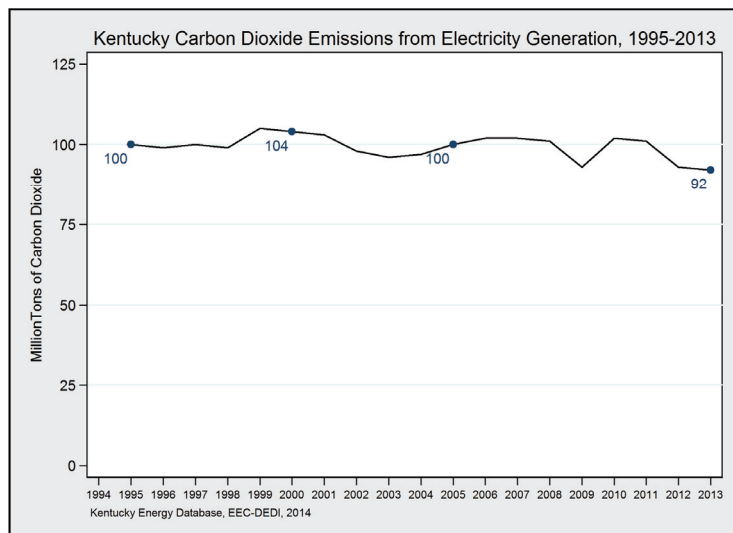
Kentucky Electric Power Emissions



Emission	Tons	Since 1995
Carbon Dioxide	92,255,593	-7.8%
Sulfur Dioxide	188,114	-72.2%
Nitrogen Oxides	84,877	-76.8%

Sulfur dioxide and nitrogen oxides are considered criteria pollutants, and their release is restricted by National Ambient Air Quality Standards (NAAQS) set forth by the Environmental Protection Agency.

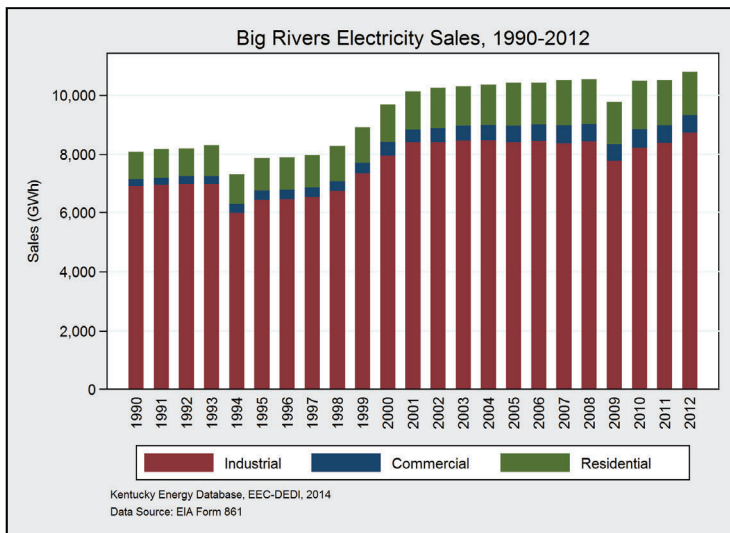
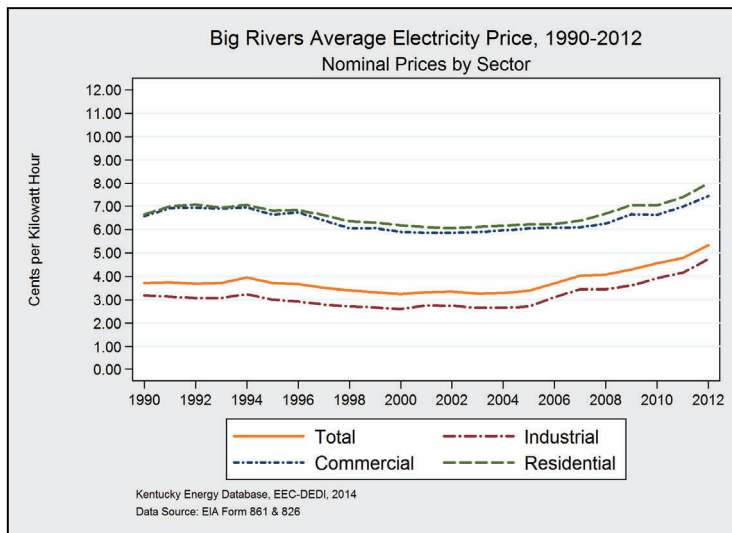
Sulfur dioxide (SO₂) is a highly reactive gas and major pollutant that is monitored and regulated at the state and federal level due to its connection to acid rain, incidence of asthma, and other respiratory problems. In 2013, the electric power sector of Kentucky emitted 188,114 tons of sulfur dioxide, a 72.2 percent decrease from 1995 and 67.9 percent from 2000.



Nitrogen oxides (NO_x) are a group of highly reactive regulated pollutants: Nitric Oxide (NO), Nitrogen Dioxide (NO₂), and Nitrous oxide (N₂O). Nitrogen oxide, which is displayed here, has been shown to cause acid rain and exacerbate respiratory disease, while nitrous oxide, or laughing gas, is a greenhouse gas 312 times more potent than carbon dioxide. In 2013, the electric power sector of Kentucky emitted 84,887 tons of nitrogen oxides, a decrease of 76.8 percent from 1995 and of 65.6 percent from 2000.

Carbon dioxide (CO₂) emissions from fossil fuel power plants, although not directly harmful to human health, are a greenhouse gas monitored at the state and federal level. In 2013, electric power plants in Kentucky emitted 92 million tons of carbon dioxide, a decrease of 7.8 percent from 1995 and a decrease of 11 percent from 2000.

Big Rivers

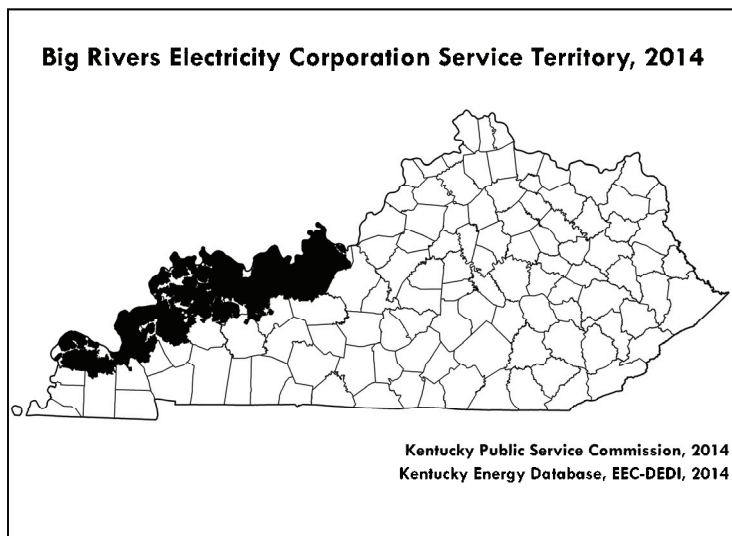


Sector	2012 Cents/kWh	Since 2000*
Total†	5.23	+23%
Residential	7.98	-3.2%
Commercial	7.43	-5.6%
Industrial	4.73	+36.5%

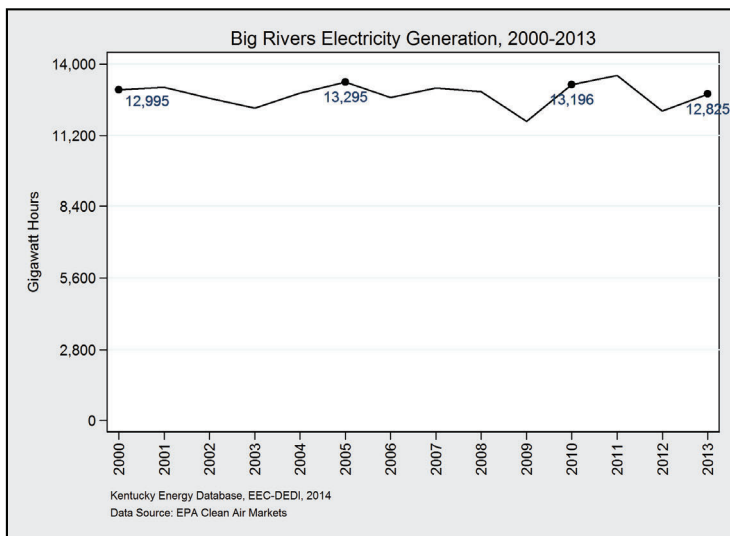
*Change in real 2010 U.S.\$

Sector	GWh	Percentage
Total†	10,798	100%
Residential	1,466	13.6%
Commercial	599	5.5%
Industrial	8,733	80.9%

†Includes direct sales and sales to rural electric cooperatives



Big Rivers Energy Corporation generates and sells electricity in northwestern Kentucky. Total electricity prices in 2012 were 5.2 cents per kWh and have increased by 23 percent since 2000 in inflation-adjusted dollars. Big Rivers serves three RECCs: Kenergy Corporation, Meade County RECC, and Jackson Purchase Energy Corporation. Big Rivers operates four coal-fired generating stations.

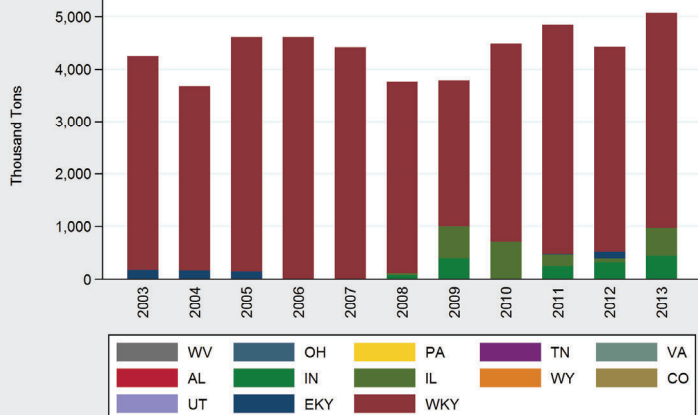


Electricity Generation	2013	Since 2000
Gigawatt Hours	12,825	-1.3%

Big Rivers generated 12.8 TWh of electricity in 2013, an increase of 5.5 percent from 2012, when it generated 12.1 TWh and sold 10.8 TWh of electricity. Big Rivers has sold the bulk of its electricity load to industrial firms.

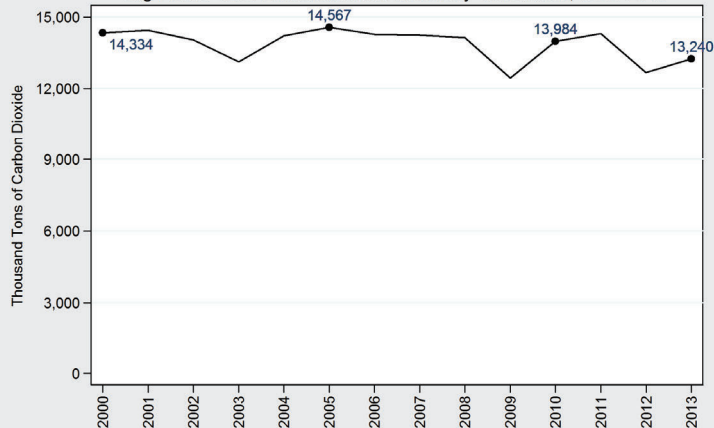
Big Rivers

Big Rivers Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

Big Rivers CO₂ Emissions from Electricity Generation, 2000-2013



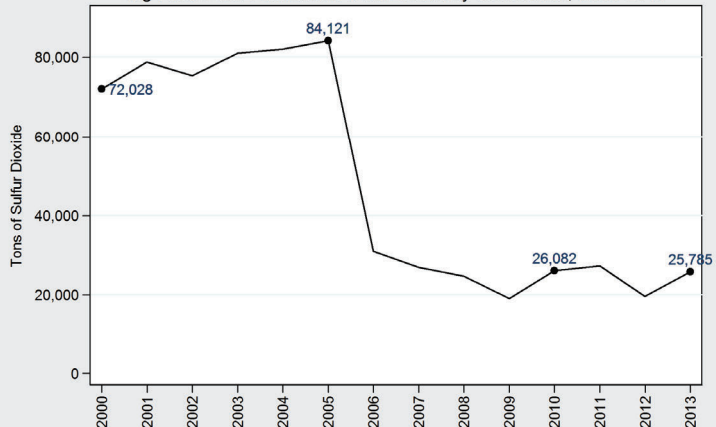
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	5,074,545	100%
Western Kentucky	4,106,850	80.9%
Illinois	519,911	10.2%
Indiana	447,784	8.8%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	13,239,817	-7.6%
Rate (lbs./MWh)	2,064	-6.4%

Big Rivers Electricity Corporation emitted 13.2 million tons of CO₂ in 2013, a decrease of almost 8 percent since 2000. The rate of CO₂ emissions has decreased by 6 percent during that period and had the highest rate of CO₂ emissions in the state.

Big Rivers SO₂ Emissions from Electricity Generation, 2000-2013

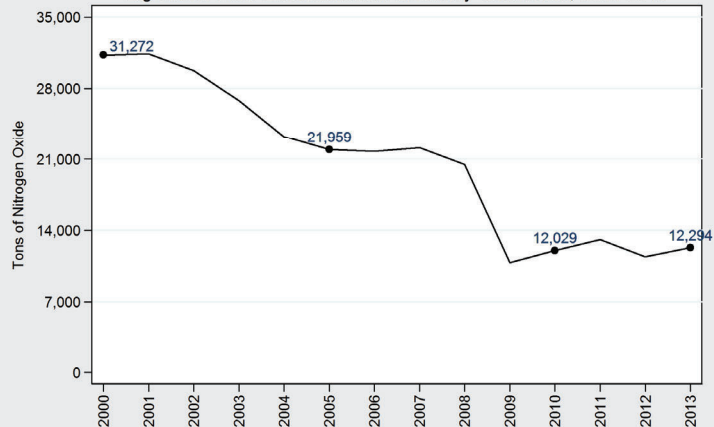


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	27,785	-64.2%
Rate (lbs./MWh)	4.02	-63.7%

Big Rivers Electricity Corporation emitted 27,785 tons of SO₂ in 2013, a decrease of 64 percent since 2000. The rate of SO₂ emissions also decreased by 64 percent during that period.

Big Rivers NO_x Emissions from Electricity Generation, 2000-2013

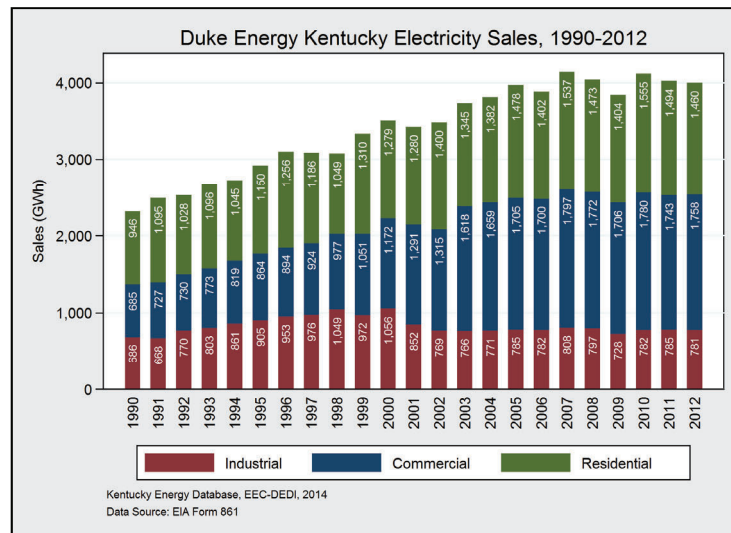
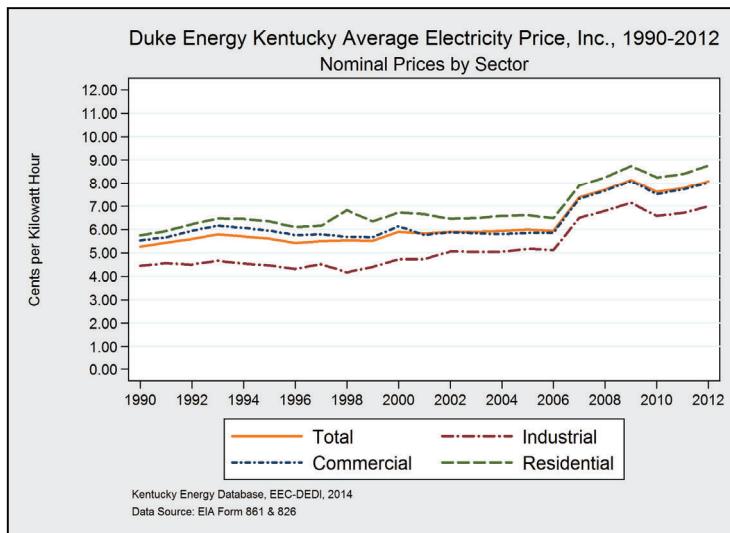


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	12,294	-60.7%
Rate (lbs./MWh)	1.92	-60.2%

Big Rivers Electricity Corporation emitted 12,294 tons of NO_x in 2013, a reduction of 61 percent since 2000. The rate of NO_x emissions decreased by 60 percent during that period, but is the most intensive electricity utility in terms of nitrogen dioxide in the Commonwealth.

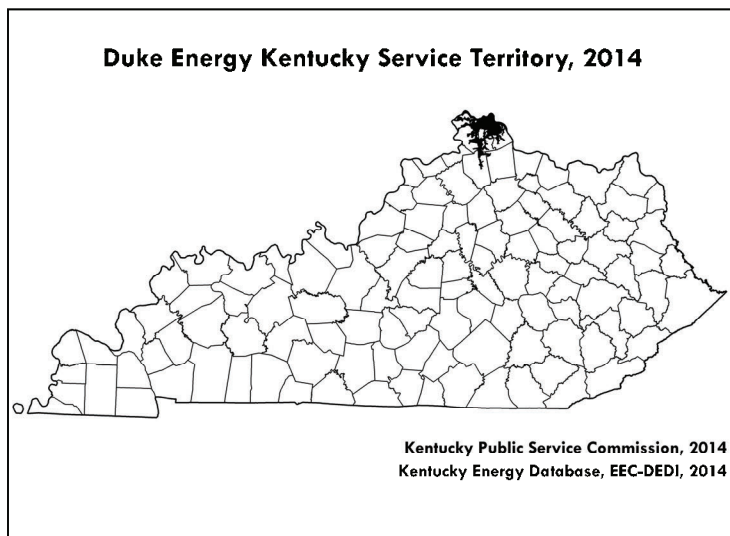
Duke Energy Kentucky



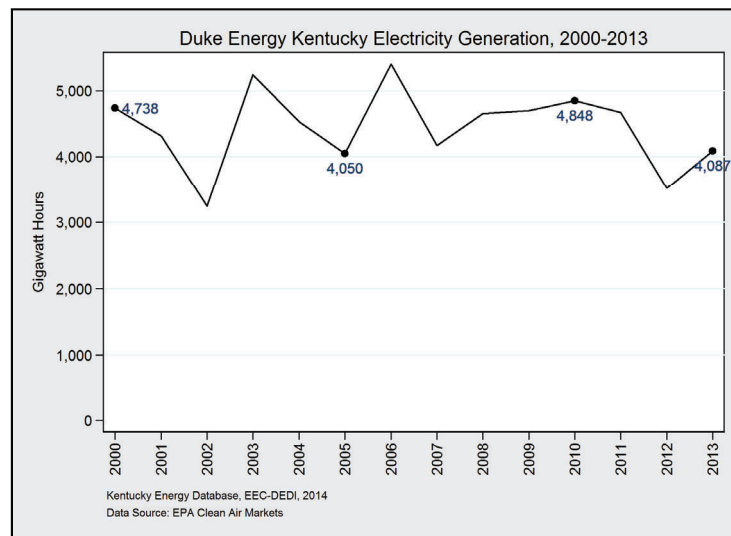
Sector	2012 Cents/kWh	Since 2000*
Total†	8.09	+2.7%
Residential	8.77	-2.2%
Commercial	8.01	-2.1%
Industrial	6.99	+11.0%

*Change in real 2010 U.S.\$

Sector	GWh	Percentage
Total†	3,999	100%
Residential	1,460	36.5%
Commercial	1,758	44.0%
Industrial	781	19.5%



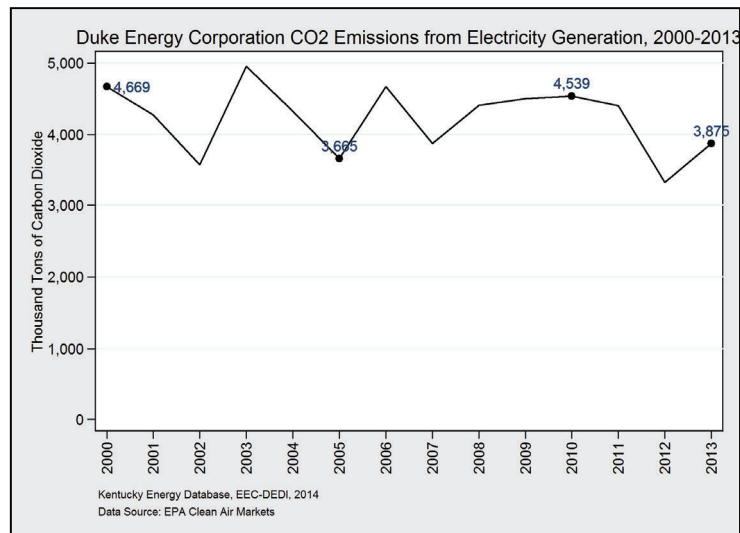
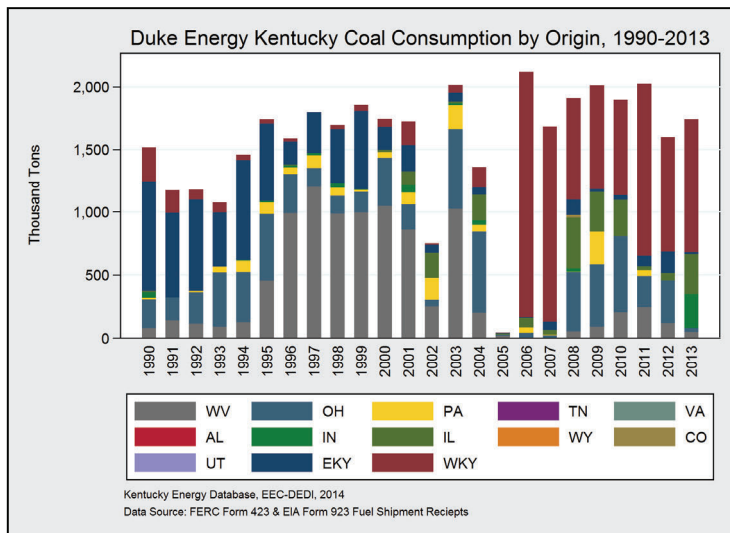
Duke Energy Kentucky sells electricity in northern Kentucky and is owned and operated by Duke Energy. Total electricity prices in 2012 were 8.1 cents per kWh and have increased by 2.7 percent since 2000 in inflation-adjusted dollars. Duke Energy owns and operated the East Bend coal-fired power plant in Boone County. Duke Energy also sells electricity throughout North and South Carolina, Indiana, and southeast Ohio.



Electricity Generation	2013	Since 2000
Gigawatt Hours	4,087	-13.7%

Duke Energy Kentucky generated 4.1 TWh of electricity in 2013, an increase of 16.3 percent from 2012, when it generated 3.5 TWh and sold four TWh of electricity.

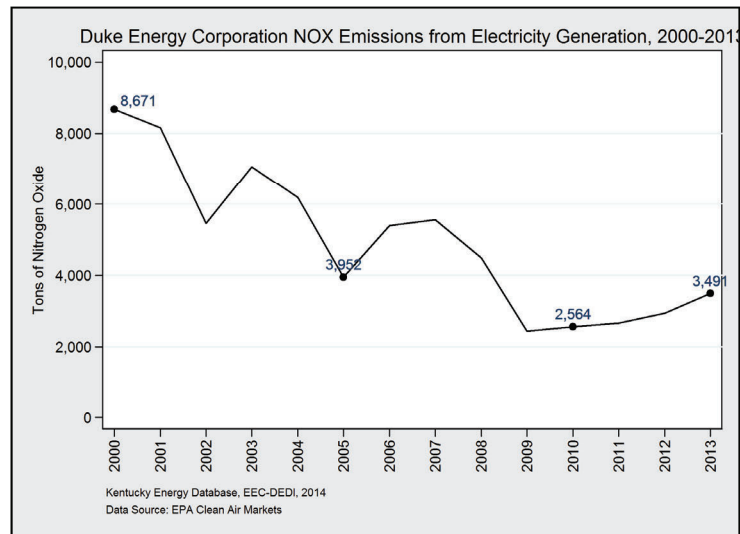
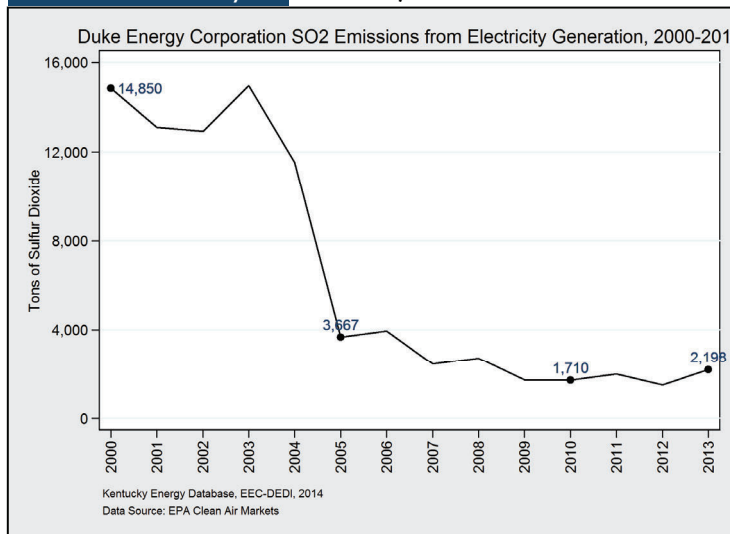
Duke Energy Kentucky



State	2013 Tons	Percentage
Total	1,741,221	100%
Western Kentucky	1,062,012	61.0%
Illinois	314,406	18.1%
Indiana	272,007	15.6%
West Virginia	50,111	2.9%
Ohio	28,691	1.6%
Eastern Kentucky	13,994	0.8%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	3,874,911	-17.0%
Rate (lbs./MWh)	1,896	-3.8%

Duke Energy Kentucky emitted 3.9 million tons of CO₂ in 2013, a decrease of 17 percent since 2000. The rate of CO₂ emissions has decreased by 3.8 percent during that period.



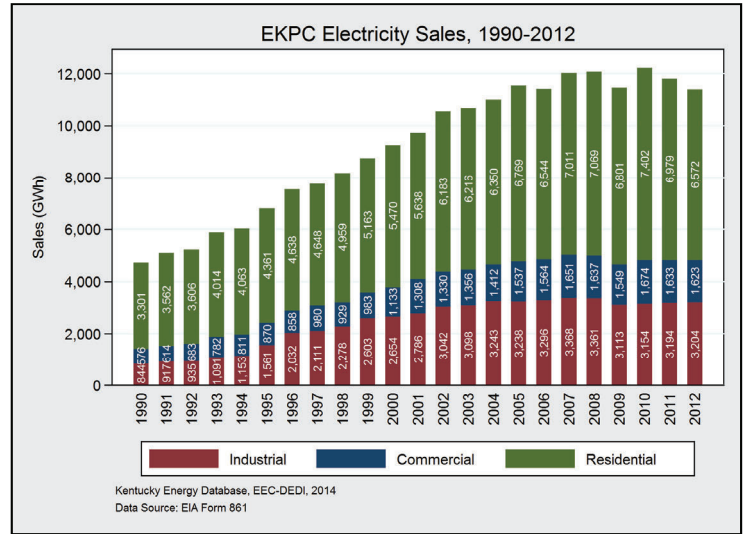
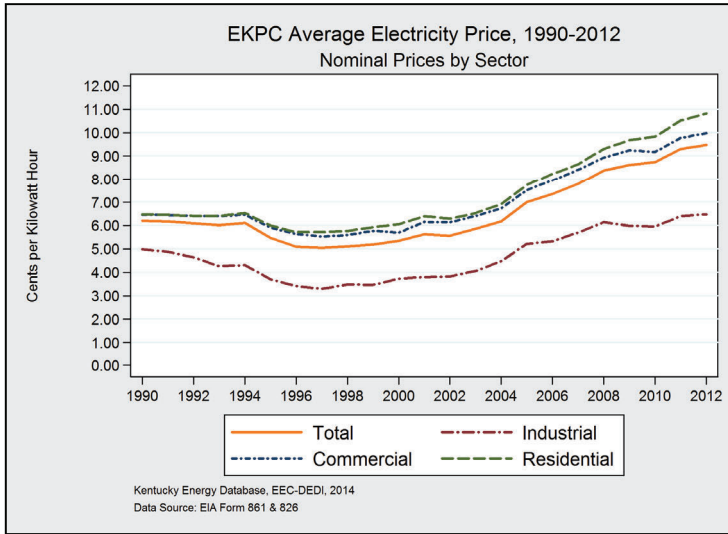
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	2,198	-85.2%
Rate (lbs./MWh)	1.08	-82.8%

Duke Energy Kentucky emitted 2,198 tons of SO₂ in 2013, a decrease of 85 percent since 2000. The rate of SO₂ emissions reduced by 83 percent during that period.

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	3,491	-59.7%
Rate (lbs./MWh)	1.71	-53.3%

Duke Energy Kentucky emitted 3,491 tons of NO_x in 2013, a reduction of 60 percent since 2000. The rate of NO_x emissions decreased by 53 percent during that period.

East Kentucky Power Cooperative

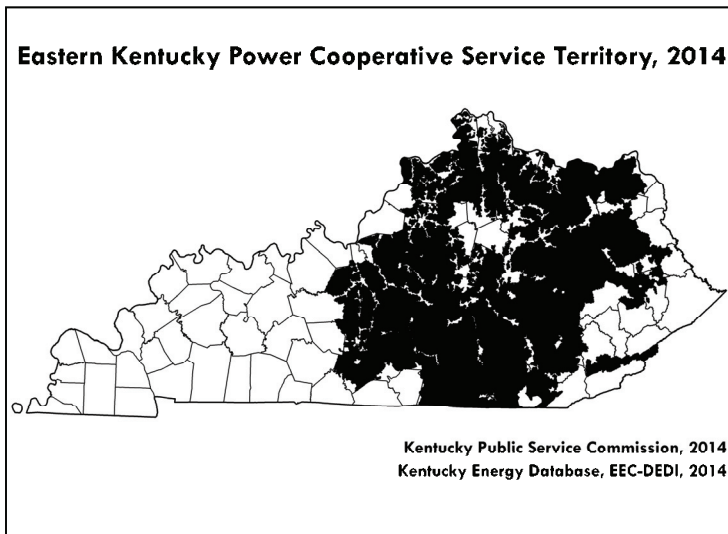


Sector	2012 Cents/kWh	Since 2000*
Total	9.48	+33.0%
Residential	10.82	+34.2%
Commercial	9.98	+31.4%
Industrial	6.48	+30.4%

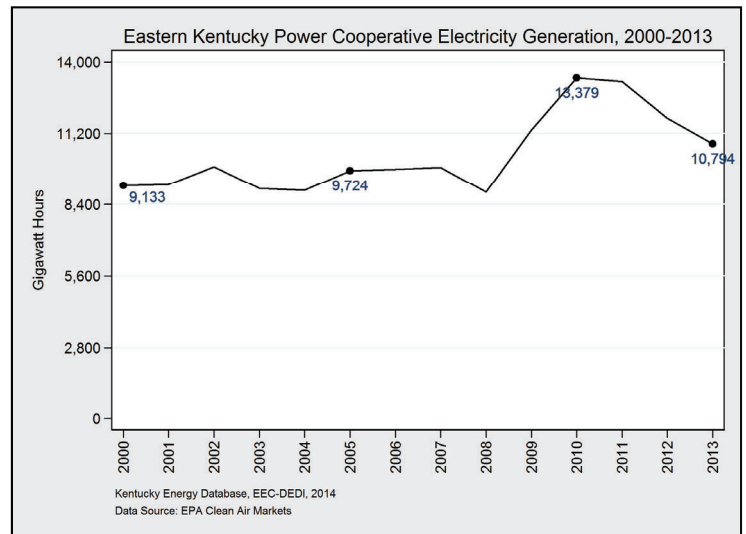
*Change in real 2010 U.S.\$

Sector	GWh	Percentage
Total	11,399	100%
Residential	6,572	57.7%
Commercial	1,623	14.2%
Industrial	3,204	28.1%

†Includes direct sales and sales to rural electric cooperatives



East Kentucky Power Cooperative serves central and eastern Kentucky where 16 RECCs jointly own and purchase electricity from EKPC. Total electricity prices in 2012 were 9.4 cents per kWh and have increased by 33 percent since 2000 in inflation-adjusted dollars. EKPC owns and operates three coal-fired power plants, one natural gas electricity generating station, and six landfill gas generating stations.

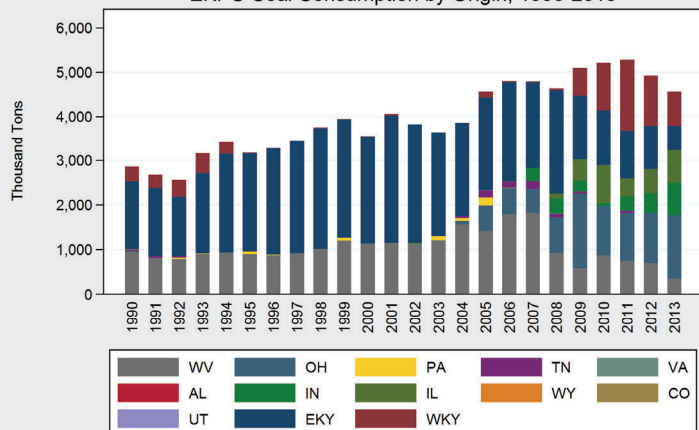


Electricity Generation	2013	Since 2000
Gigawatt Hours	10,794	+18.2%

East Kentucky Power Cooperative generated 10.8 TWh of electricity in 2013, a decrease of 8.5 percent from 2012, when it generated 11.8 TWh and sold 11.4 TWh of electricity.

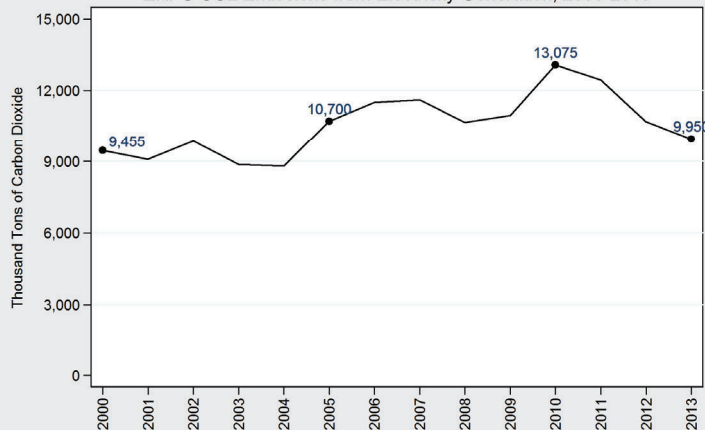
East Kentucky Power Cooperative

EKPC Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

EKPC CO2 Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	4,562,604	100%
Ohio	1,424,936	31.2%
Western Kentucky	775,799	17.0%
Illinois	740,128	16.2%
Indiana	722,866	15.8%
Eastern Kentucky	553,191	12.1%
West Virginia	345,684	7.6%

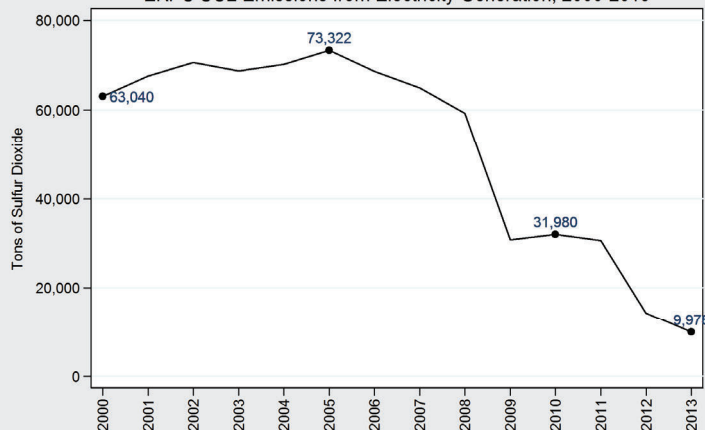
Carbon Dioxide	2013	Since 2000
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Emissions (Tonnage) 9,950,437 +5.2%

Rate (lbs./MWh) 1,843 -11.0%

East Kentucky Power Cooperative emitted almost 10 million tons of CO₂ in 2013, an increase of 5 percent since 2000. The rate of CO₂ emissions has decreased by 11 percent during that period.

EKPC SO2 Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

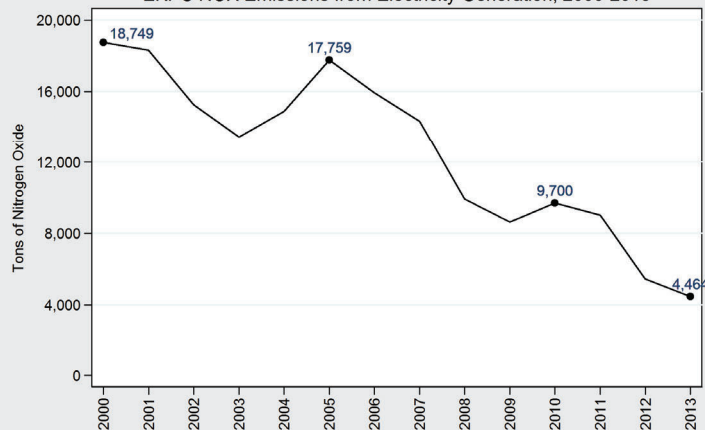
Sulfur Dioxide	2013	Since 2000
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Emissions (Tonnage) 9,978 -84.2%

Rate (lbs./MWh) 1.85 -86.6%

East Kentucky Power Cooperative emitted 9,978 tons of SO₂ in 2013, a decrease of 84 percent since 2000. The rate of SO₂ emissions reduced by 87 percent during that period.

EKPC NOX Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

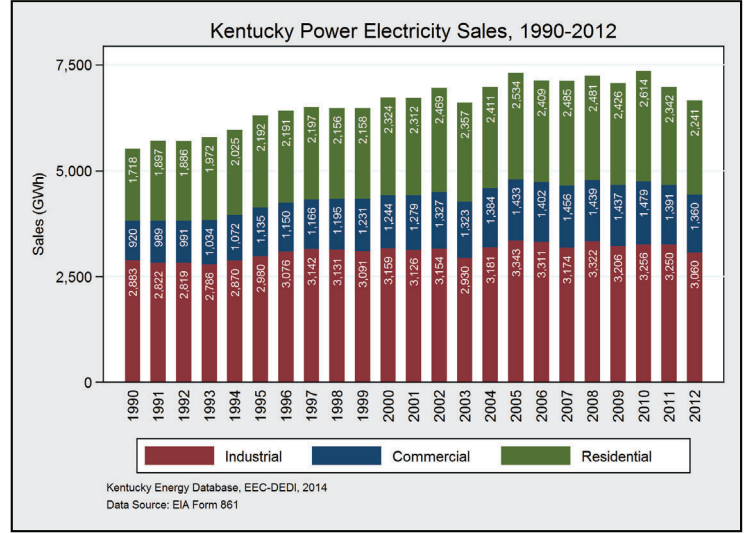
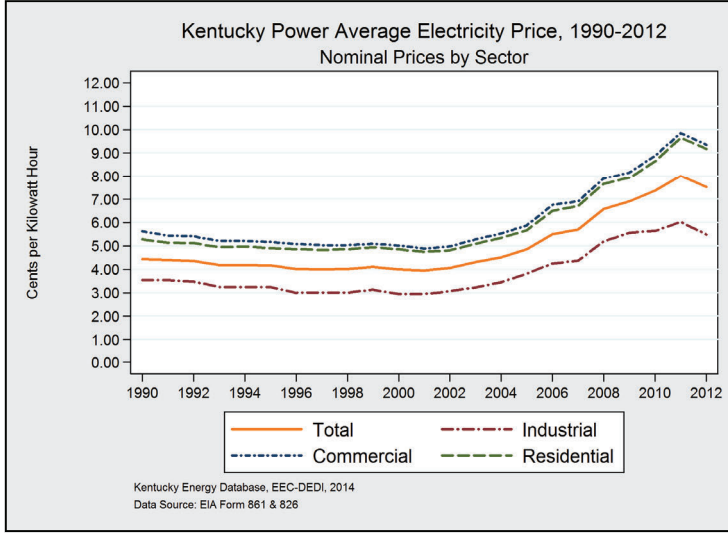
Nitrogen Dioxide	2013	Since 2000
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Emissions (Tonnage) 4,464 -76.2%

Rate (lbs./MWh) 0.83 -80.0%

East Kentucky Power Cooperative emitted 4,464 tons of NO_x in 2013, a reduction of 76 percent since 2000. The rate of NO_x emissions decreased by 80 percent during that period.

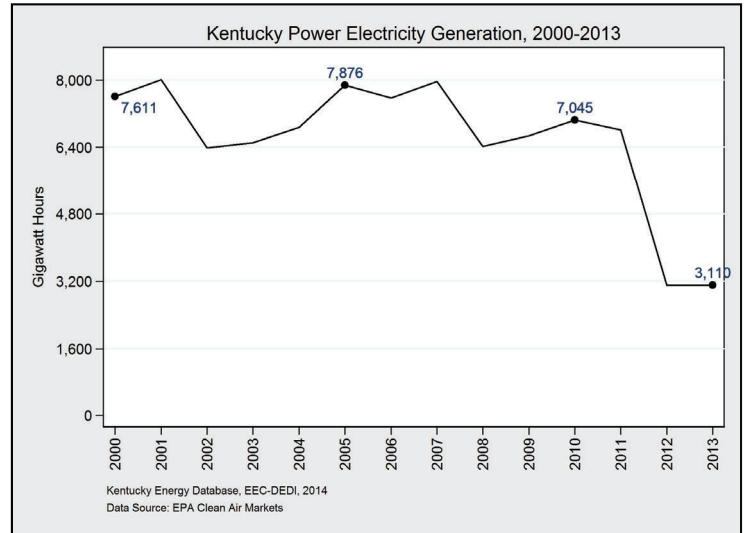
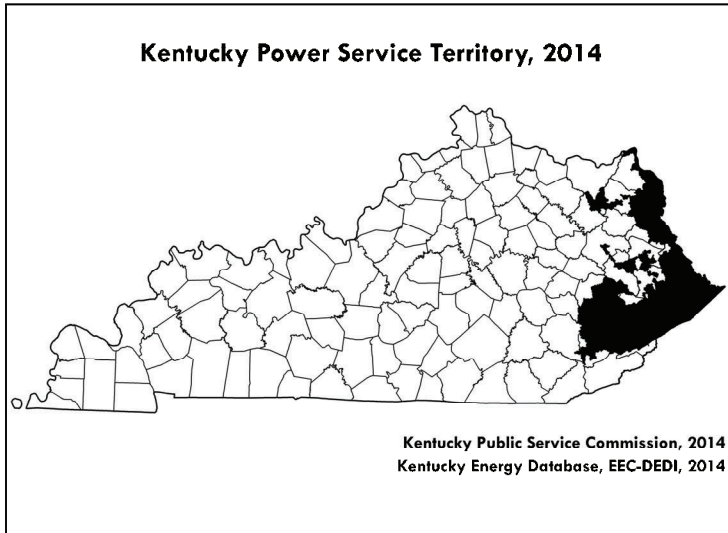
Kentucky Power



Sector	2012 Cents/kWh	Since 2000*
Total	7.52	+41.2%
Residential	9.18	+42.0%
Commercial	9.36	+39.8%
Industrial	5.49	+39.7%

*Change in real 2010 U.S.\$

Sector	GWh	Percentage
Total	6,661	100%
Residential	2,241	33.7%
Commercial	1,360	20.4%
Industrial	3,060	45.9%



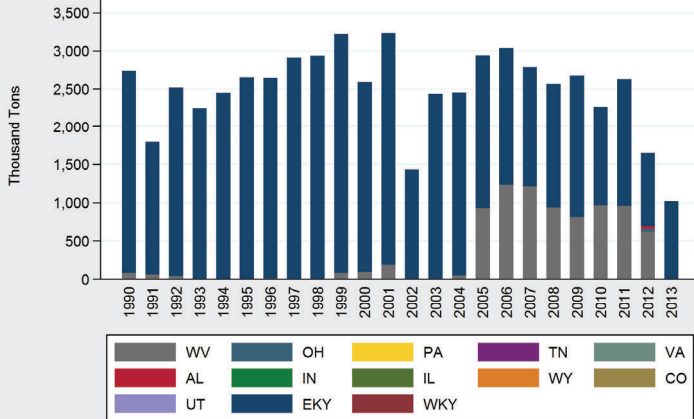
Kentucky Power, a subsidiary of American Electric Power, generates and distributes electricity in eastern Kentucky. Total electricity prices in 2012 were 7.5 cents per kWh and have increased by 41 percent since 2000 in inflation-adjusted dollars. Kentucky Power operates the Big Sandy power plant in Louisa Kentucky.

Electricity Generation	2013	Since 2000
Gigawatt Hours	3,110	-59.1%

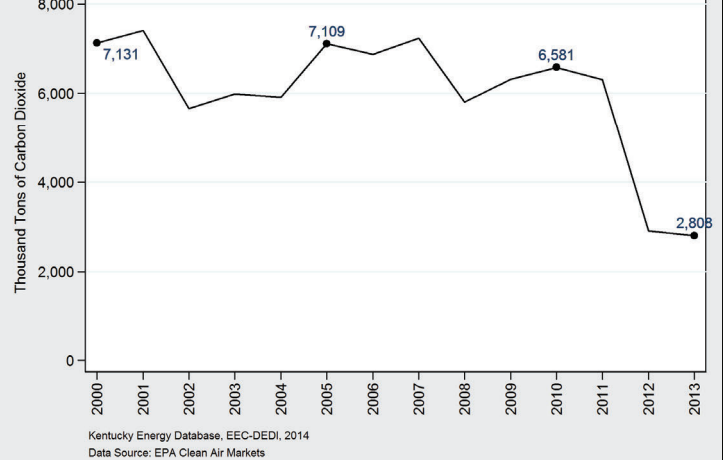
Kentucky Power generated 3.1 TWh of electricity in 2013, an increase of 0.2 percent from 2012, when it generated 3.1 TWh and sold 6.7 TWh of electricity.

Kentucky Power

Kentucky Power Coal Consumption by Origin, 1990-2013



Kentucky Power CO2 Emissions from Electricity Generation, 2000-2013

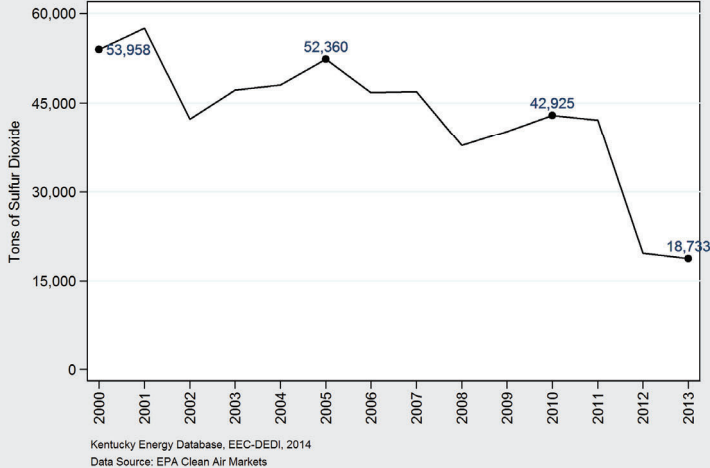


State	2013 Tons	Percentage
Total	1,017,183	100%
Eastern Kentucky	1,017,140	99.9%
West Virginia	43	<0.1%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	2,668,316	-61.1%
Rate (lbs./MWh)	1,840	-0.2%

Kentucky Power emitted 2.7 million tons of CO₂ in 2013, a decrease of 61 percent since 2000. The rate of CO₂ emissions is relatively unchanged and the decrease in emissions results from the ramping down of the Big Sandy Plant's coal units in preparation for their closure in 2015.

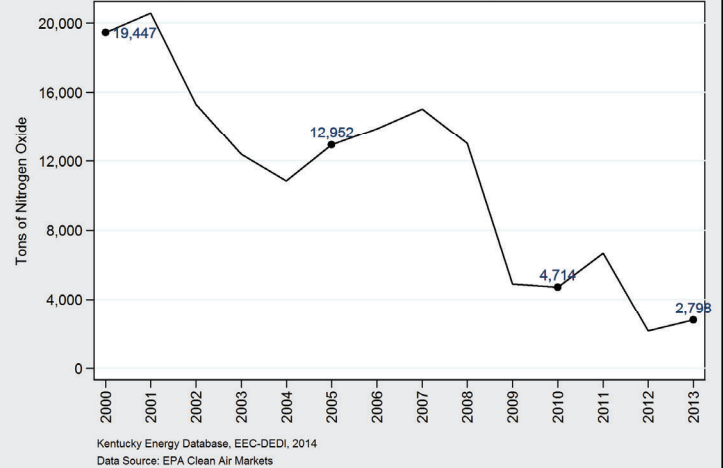
Kentucky Power SO2 Emissions from Electricity Generation, 2000-2013



Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	18,733	-63.8%
Rate (lbs./MWh)	12.91	-7.3%

Kentucky Power emitted 18.7 thousand tons of SO₂ in 2013, a decrease of 64 percent since 2000. The rate of SO₂ emissions reduced by 7.3 percent during that period.

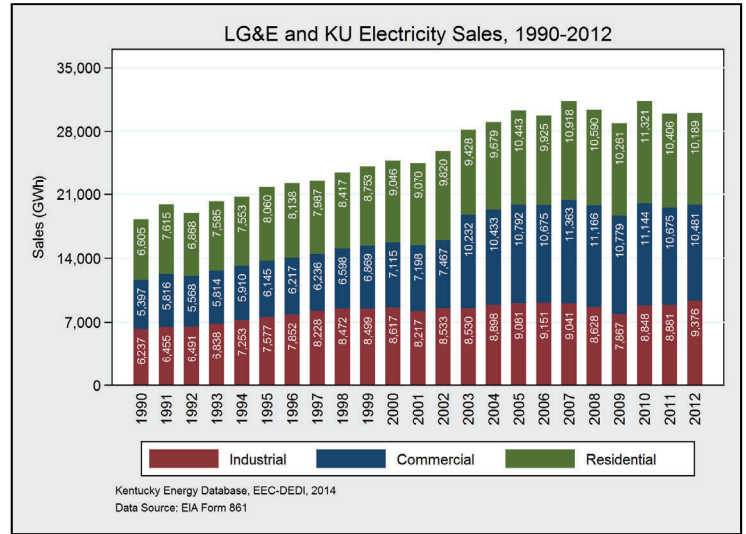
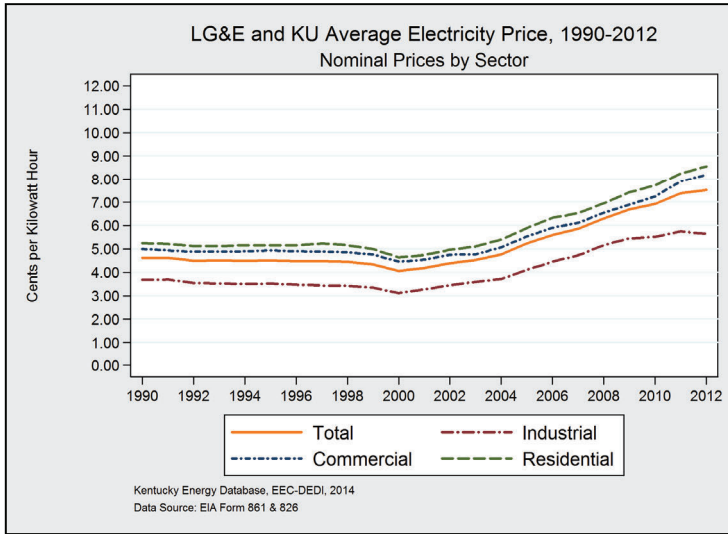
Kentucky Power NOX Emissions from Electricity Generation, 2000-2013



Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	2,733	-85.3%
Rate (lbs./MWh)	1.88	-62.4%

Kentucky Power emitted 2,733 tons of NO_x in 2013, a reduction of 85 percent since 2000. The rate of NO_x emissions decreased by 62 percent during that period.

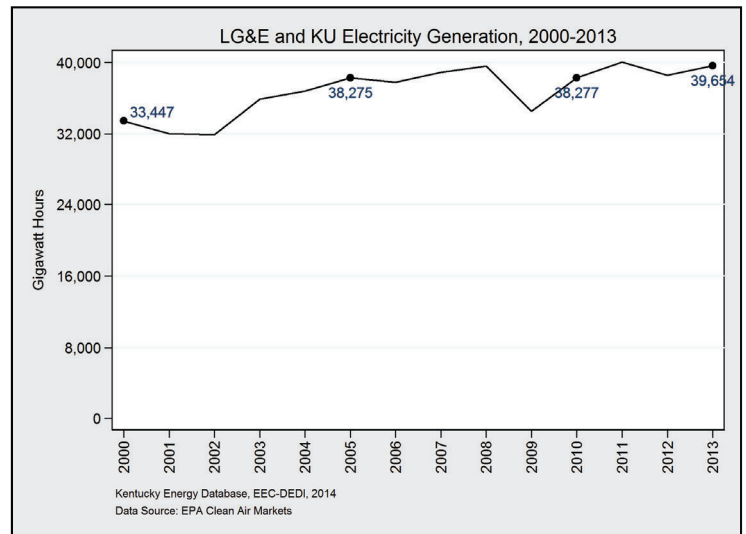
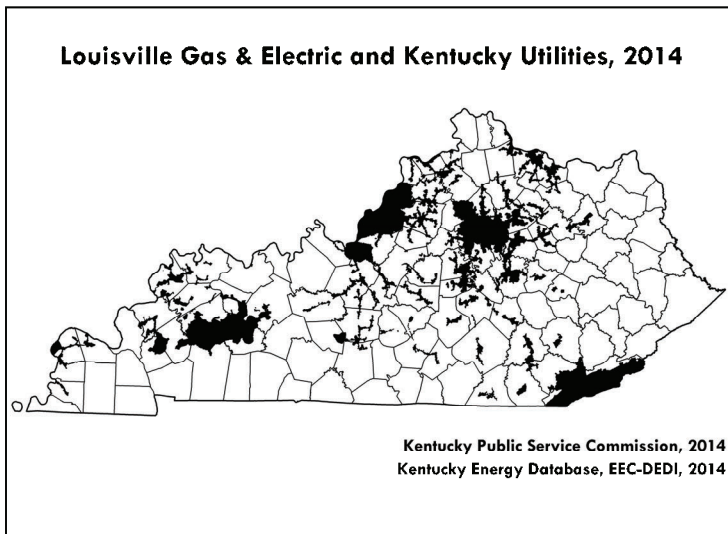
LG&E and KU



Sector	2012 Cents/kWh	Since 2000*
Total	7.52	+39.2%
Residential	8.55	+38.4%
Commercial	8.21	+38.0%
Industrial	5.64	+36.0%

*Change in real 2010 U.S.\$

Sector	GWh	Percentage
Total	30,046	100%
Residential	10,189	33.9%
Commercial	10,481	34.9%
Industrial	9,376	31.2%



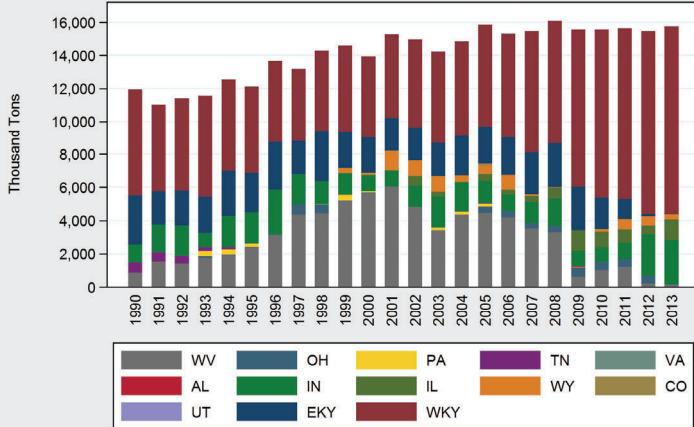
LG&E and KU is the single largest utility by sales in Kentucky and sells electricity throughout the state, primarily in densely populated areas. Total electricity prices in 2012 were 7.5 cents per kWh and have increased by 39 percent since 2000 in inflation-adjusted dollars. LG&E and KU operate numerous electricity generation facilities throughout the state including seven coal-fired power plants, two hydroelectric dams, and three natural gas facilities.

Electricity Generation	2013	Since 2000
Gigawatt Hours	39,654	+18.6%

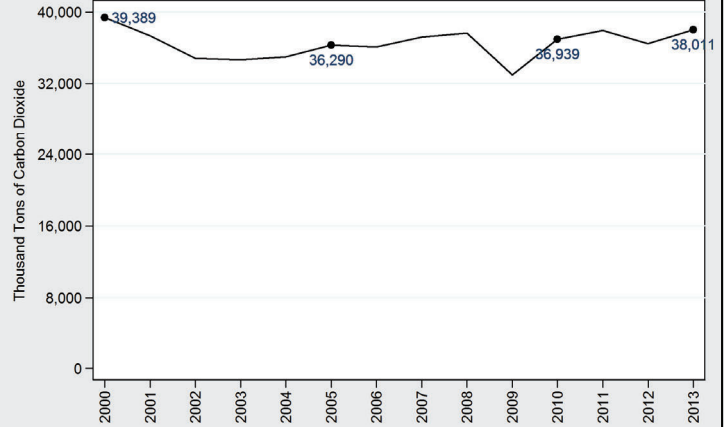
LG&E and KU generated 39.7 TWh of electricity in 2013, an increase of 3 percent from 2012, when it generated 33.5 TWh and sold 38.6 TWh of electricity. The utility is the largest utility in the state, generating 32 percent of the state's total and selling 39 percent of all investor owned or federal utilities in the state.

LG&E and KU

LG&E and KU Coal Consumption by Origin, 1990-2013



LG&E and KU CO₂ Emissions from Electricity Generation, 2000-2013

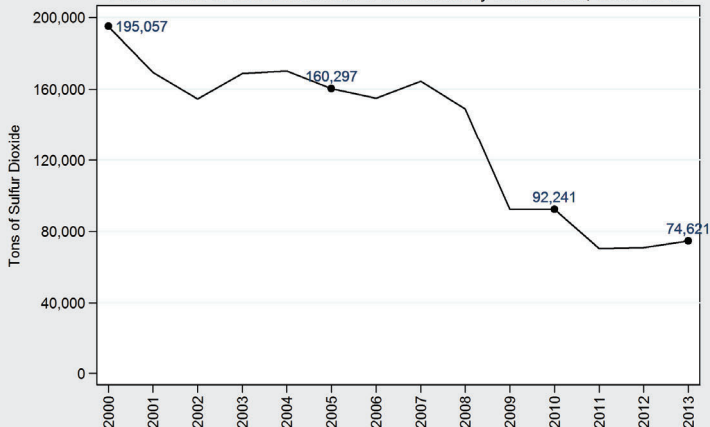


State	2013 Tons	Percentage
Total	15,728,010	100%
Western Kentucky	11,361,050	72.2%
Indiana	2,667,155	17.0%
Illinois	1,206,390	7.7%
Wyoming	308,409	2.0%
West Virginia	144,921	0.9%
Eastern Kentucky	40,085	0.3%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	38,011,312	-3.5%
Rate (lbs./MWh)	1,917	-18.6%

LG&E and KU emitted 38 million tons of CO₂ in 2013, a decrease of 3.5 percent since 2000. The rate of CO₂ emissions has decreased by almost 19 percent during that period.

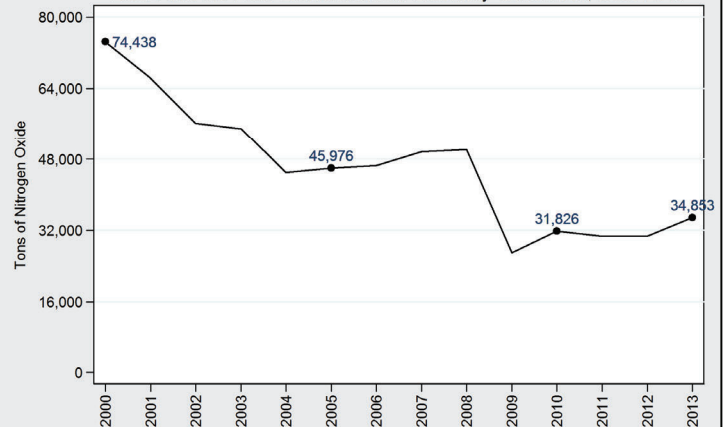
LG&E and KU SO₂ Emissions from Electricity Generation, 2000-2013



Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	74,621	-61.7%
Rate (lbs./MWh)	3.76	-67.7%

LG&E and KU emitted 74,621 tons of SO₂ in 2013, a decrease of 62 percent since 2000. The rate of SO₂ emissions reduced by 68 percent during that period.

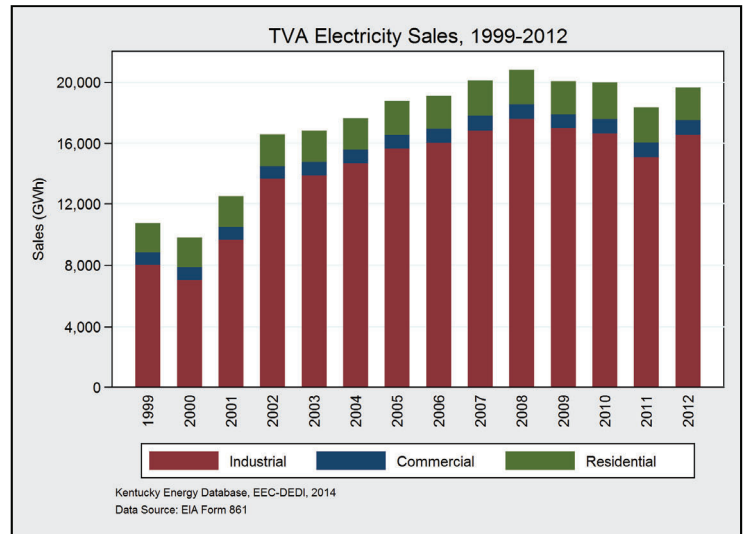
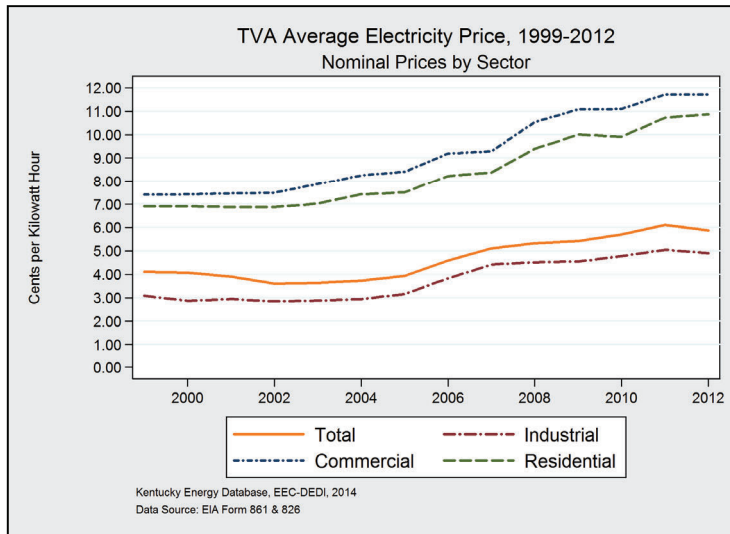
LG&E and KU NO_x Emissions from Electricity Generation, 2000-2013



Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	34,853	-53.2%
Rate (lbs./MWh)	1.76	-60.5%

LG&E and KU emitted 34,853 tons of NO_x in 2013, a reduction of 53 percent since 2000. The rate of NO_x emissions decreased by 61 percent during that period.

Tennessee Valley Authority

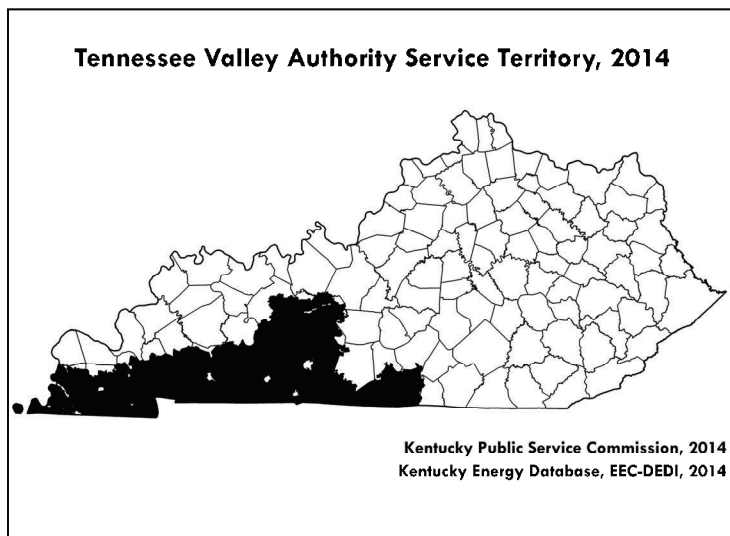


Sector	2012 Cents/kWh	Since 2000*
Total†	5.88	+8.0%
Residential	10.87	+18.1%
Commercial	11.71	+18.4%
Industrial	4.90	+28.0%

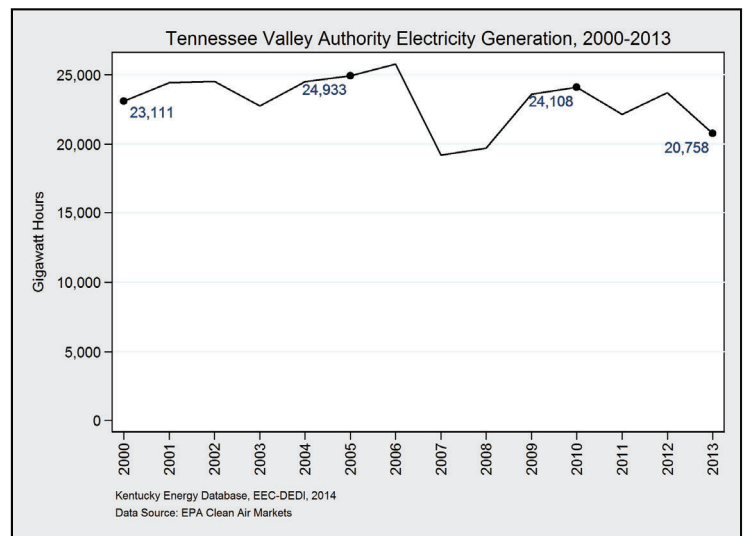
*Change in real 2010 U.S.\$

Sector	GWh	Percentage
Total†	19,654	100%
Residential	2,121	10.8%
Commercial	959	4.9%
Industrial	16,574	84.3%

†Includes direct sales and sales to rural electric cooperatives



The Tennessee Valley Authority, generates and sells electricity to five RECCs, 10 municipalities, and several industrial consumers in southwest Kentucky. Total electricity prices in 2012 were 5.9 cents per kWh and have increased by 8 percent since 2000 in inflation-adjusted dollars. In Kentucky, TVA operates the Marshall Combustion Turbine Plant near Calvert City as well as the coal-fired power plants of Paradise and Shawnee. TVA's electric service territory also extends to parts of Alabama, Georgia, Mississippi, North Carolina, Virginia, and most of Tennessee.

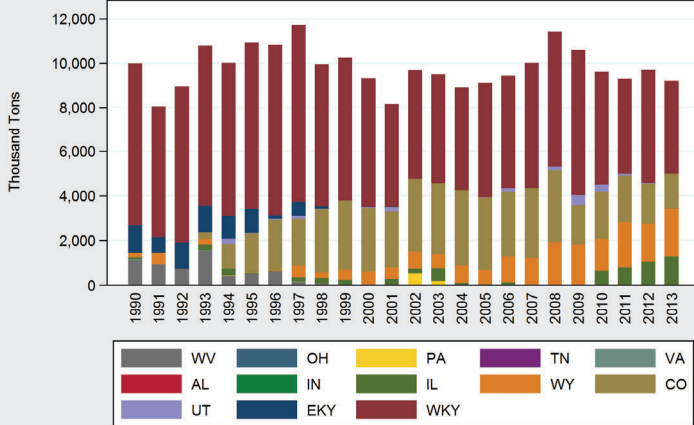


Electricity Generation	2013	Since 2000
Gigawatt Hours	20,758	-10.2%

The Tennessee Valley Authority generated 20.8 TWh of electricity in 2013, a decrease of 12 percent from 2012, when it generated 23.7 TWh and sold 19.7 TWh of electricity. TVA directly sells electricity to a number of industrial manufacturers and five RECCs. The 10 municipalities TVA supplies are not shown in the figures above.

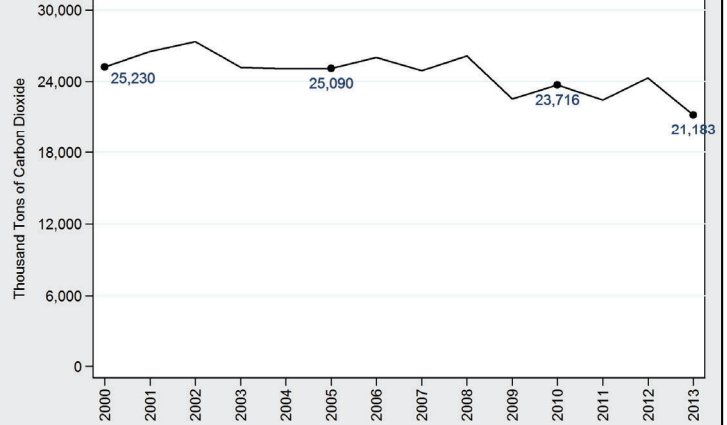
Tennessee Valley Authority

TVA Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

TVA CO₂ Emissions from Electricity Generation, 2000-2013



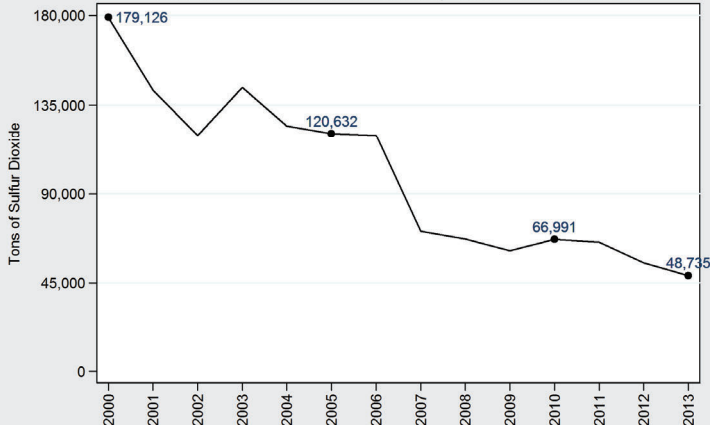
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	9,196,954	100%
Western Kentucky	4,205,257	45.7%
Wyoming	2,129,691	23.2%
Colorado	1,570,253	17.1%
Illinois	1,291,753	14.0%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	21,182,762	-16.0%
Rate (lbs./MWh)	2,041	-6.5%

The Tennessee Valley Authority emitted 21.2 million tons of CO₂ in Kentucky in 2013, a decrease of 16 percent since 2000. The rate of CO₂ emissions has decreased by 6.5 percent during that period, and remains the second-largest emitter of CO₂ in Kentucky.

TVA SO₂ Emissions from Electricity Generation, 2000-2013

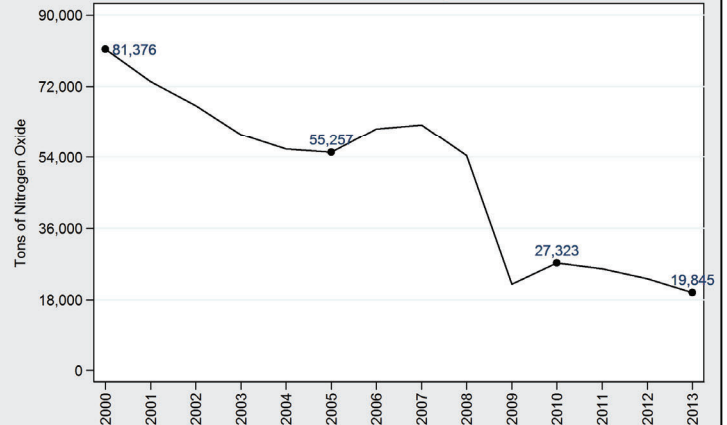


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	48,735	-72.8%
Rate (lbs./MWh)	4.70	-69.7%

The Tennessee Valley Authority emitted 48,735 tons of SO₂ in 2013, a decrease of 73 percent since 2000. The rate of SO₂ emissions reduced by 70 percent during that period, but remains the largest emitter in the state relative to its generation.

TVA NO_x Emissions from Electricity Generation, 2000-2013

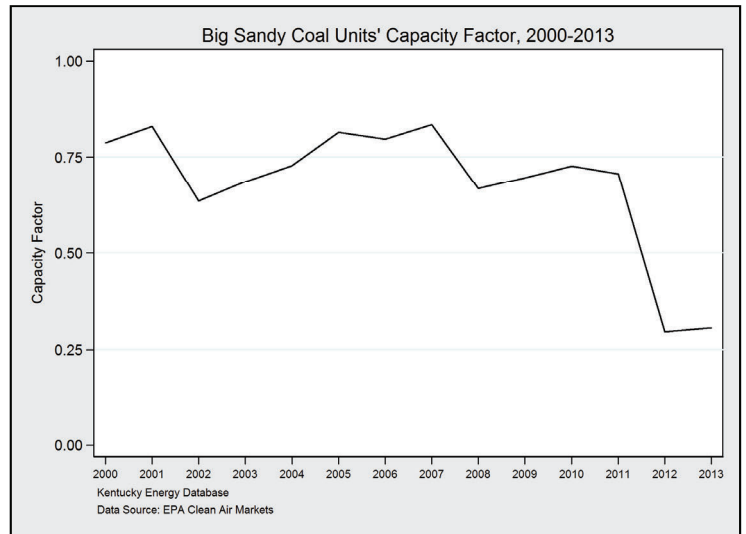
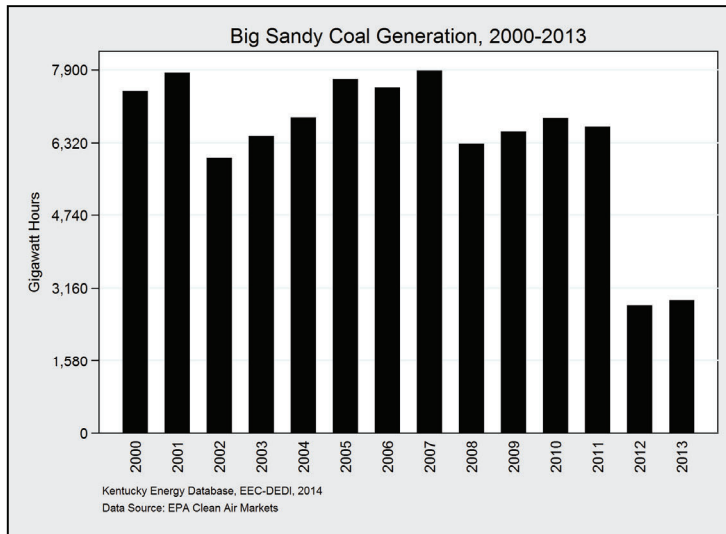


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	19,845	-75.6%
Rate (lbs./MWh)	1.91	-72.8%

The Tennessee Valley Authority emitted 19,845 tons of NO_x in 2013, a reduction of 76 percent since 2000. The rate of NO_x emissions decreased by 73 percent during that period.

Big Sandy Power Plant



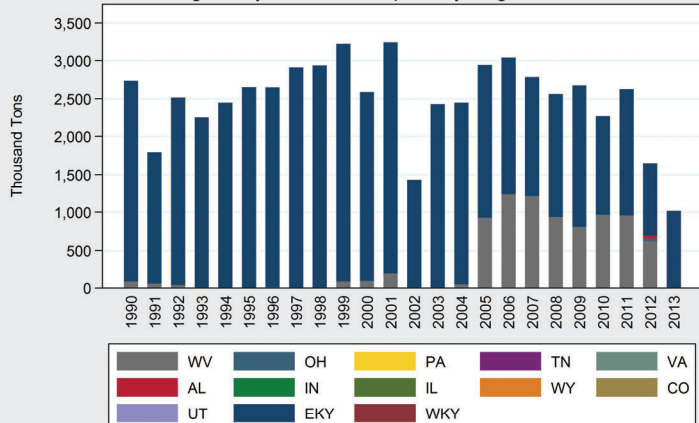
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1963	Coal	Baseload	42.4	278	1,032,692	1,942	13.60	3.13
2	1969	Coal	Baseload	26.7	800	1,868,416	1,783	12.54	1.20

The Big Sandy Power Plant, located in Lawrence County, is 51 years old and consists of two coal-fired electricity generating units. The units came online in 1963 and 1969, respectively. The plant has a total nameplate capacity of 1,078 MW. In 2013, the plant generated 2.9 GWh of electricity, down from nearly 8 GWh in 2007. This dramatic decline in generation is consistent with Big Sandy's announced retirement of its coal units in 2015. Big Sandy's plant-wide capacity factor was only 31 percent in 2013. The plant burned only coal from eastern Kentucky in 2013 from Pike, Magoffin, and Johnson counties.

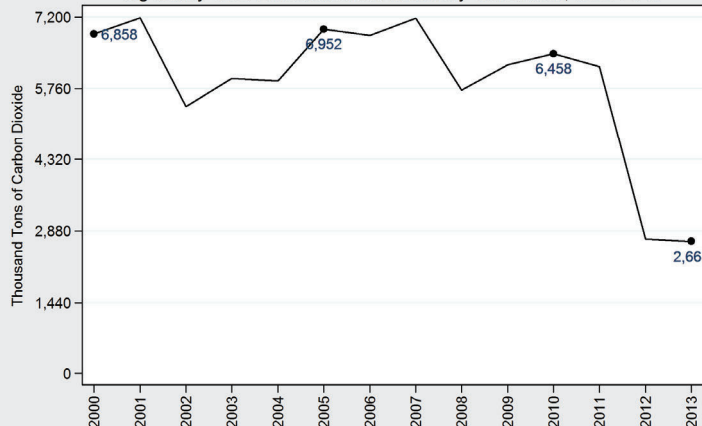
*2013

Big Sandy Power Plant

Big Sandy Coal Consumption by Origin, 1990-2013



Big Sandy CO2 Emissions from Electricity Generation, 2000-2013



State	2013 Tons	Percentage
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Total	1,017,183	100%
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Eastern Kentucky	1,017,140	99.9%
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West Virginia	43	<0.1%
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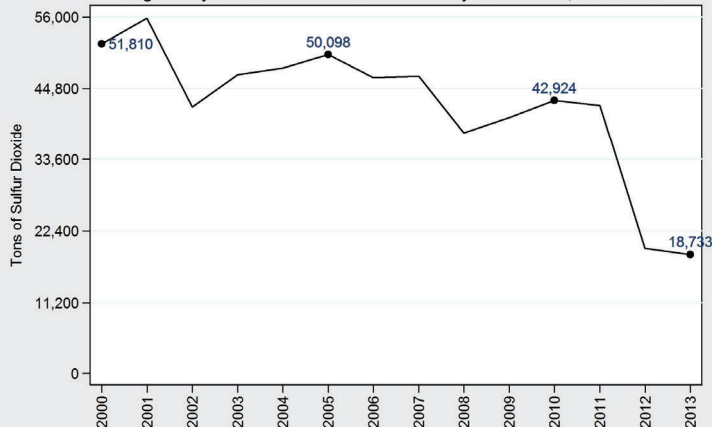
Carbon Dioxide	2013	Since 2000
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Emissions (Tonnage)	2,668,316	-61.1%
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Rate (lbs./MWh)	1,840	-0.2%
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The Big Sandy Power Plant emitted 2.7 million tons of CO₂ in 2013, a decrease of 61 percent since 2000. The rate of CO₂ emissions is relatively unchanged and the decrease in emissions results from the ramping down of the plant's coal units in preparation for their closure in 2015.

Big Sandy SO2 Emissions from Electricity Generation, 2000-2013



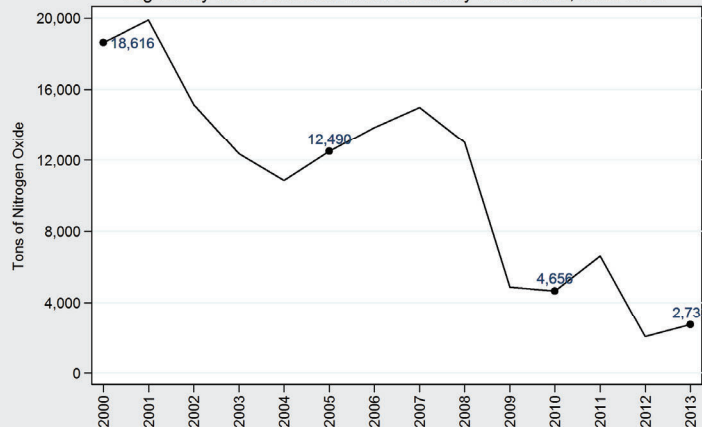
Sulfur Dioxide	2013	Since 2000
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Emissions (Tonnage)	18,733	-63.8%
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Rate (lbs./MWh)	12.91	-7.3%
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The Big Sandy Power Plant emitted 18.7 thousand tons of SO₂ in 2013, a decrease of 64 percent since 2000. The rate of SO₂ emissions reduced by 7.3 percent during that period.

Big Sandy NOx Emissions from Electricity Generation, 2000-2013



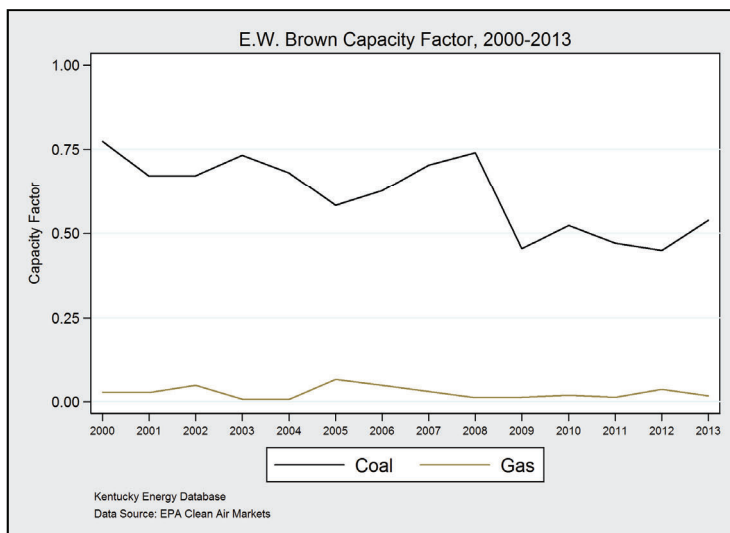
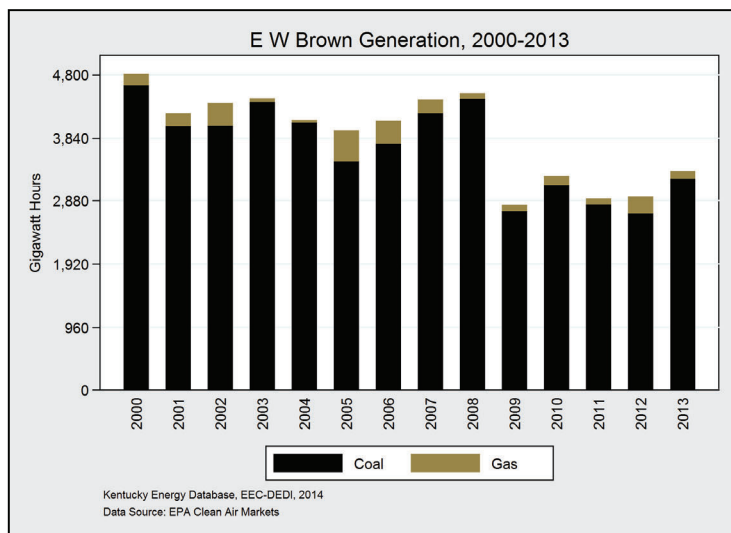
Nitrogen Dioxide	2013	Since 2000
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Emissions (Tonnage)	2,733	-85.3%
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Rate (lbs./MWh)	1.88	-62.4%
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The Big Sandy Power Plant emitted 2,733 tons of NO_x in 2013, a reduction of 85 percent since 2000. The rate of NO_x emissions decreased by 62 percent during that period.

E.W. Brown Generating Station



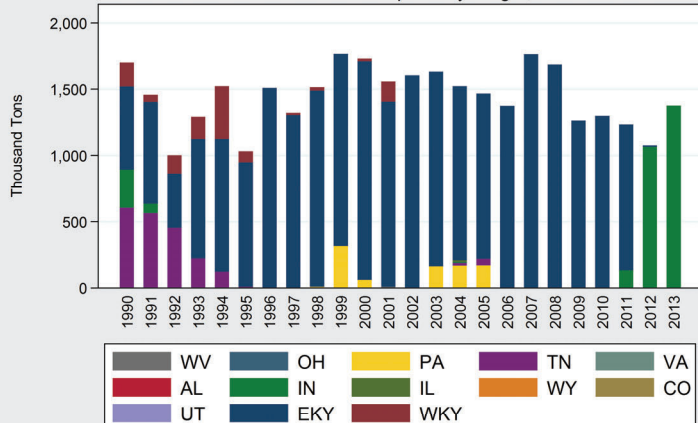
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1957	Coal	Baseload	48.0	106	445,493	2,187	0.78	2.54
2	1963	Coal	Baseload	67.4	166	979,738	2,173	2.19	2.67
3	1971	Coal	Baseload	49.9	412	1,800,369	2,170	0.79	1.77
5	2001	Natural Gas	Peaking	0.6	112	5,640	1,694	0.0085	0.85
6	1999	Natural Gas	Peaking	4.1	146	52,769	1,455	0.0073	0.54
7	1999	Natural Gas	Peaking	3.6	146	45,401	1,378	0.0070	0.67
8	1995	Natural Gas	Peaking	0.5	102	4,290	1,625	0.0079	2.00
9	1994	Natural Gas	Peaking	0.8	102	6,842	1,557	0.0094	1.59
10	1995	Natural Gas	Peaking	0.3	102	2,394	1,642	0.0075	1.85
11	1996	Natural Gas	Peaking	0.3	102	2,909	1,694	0.0165	1.76

The E.W. Brown Generating Station, located in Mercer County, consists of three coal-fired electricity generating units as well as seven natural gas combustion turbines used to meet peak demand. The plant is 57 years old, and the coal units came online in 1957, 1963, and 1971, respectively. E.W. Brown's coal units have a total nameplate capacity of 684 MW. In 2013, the plant generated 3.3 GWh of electricity and its coal-units had a capacity factor of 54 percent. The plant installed scrubbers on its three coal fired units in 2010 to reduce sulfur dioxide emissions. E.W. Brown exclusively burned coal from Indiana in 2013, marking a dramatic shift from the previous decade in which it relied heavily on coal from eastern Kentucky, primarily from Perry County, but also from Knott, Leslie, Floyd, and Magoffin counties.

*2013

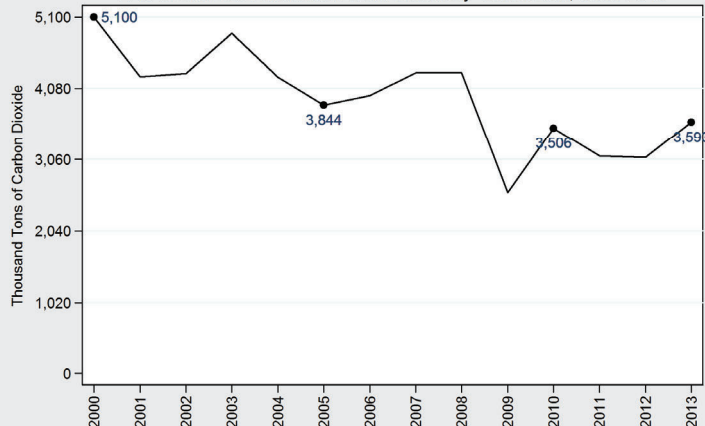
E.W. Brown Generating Station

E W Brown Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

E W Brown CO2 Emissions from Electricity Generation, 2000-2013



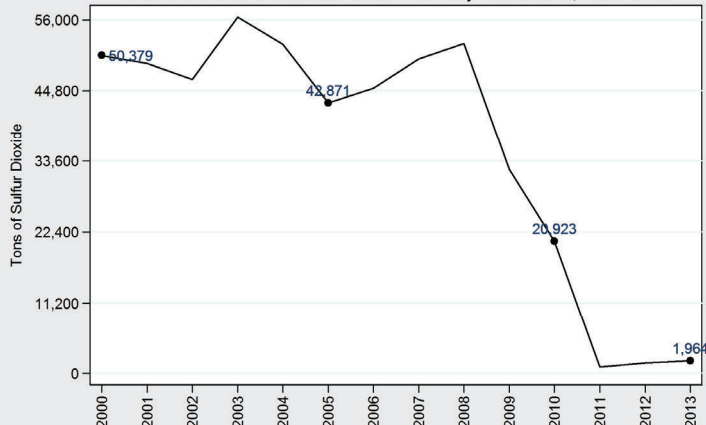
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	1,377,869	100%
Indiana	1,377,869	100%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	3,593,178	-29.5%
Rate (lbs./MWh)	2,148	+1.4%

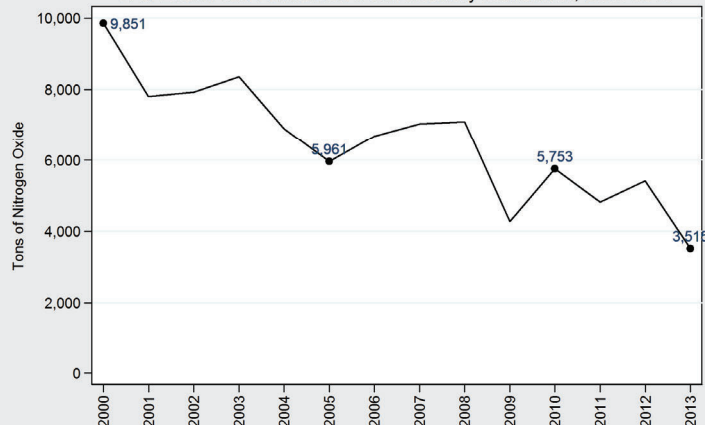
The E.W. Brown Generating Station emitted 3.5 million tons of CO₂ in 2013, a decrease of almost 30 percent since 2000. The rate of CO₂ emissions has remained relatively unchanged throughout that period.

E W Brown SO2 Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

E W Brown NOX Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

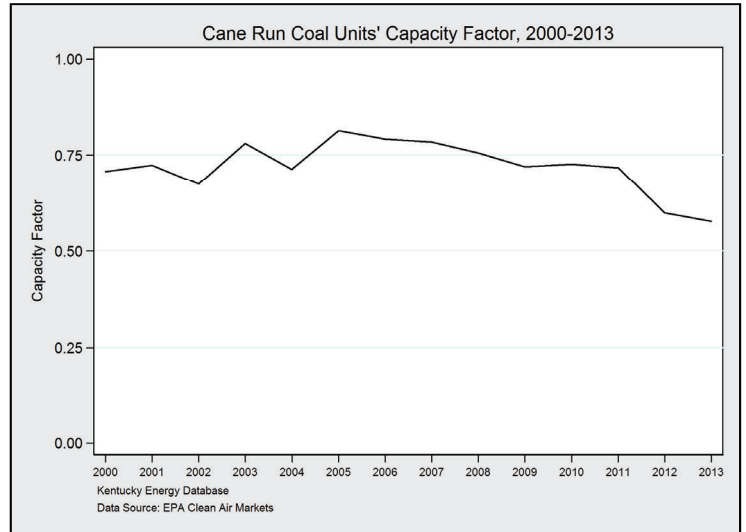
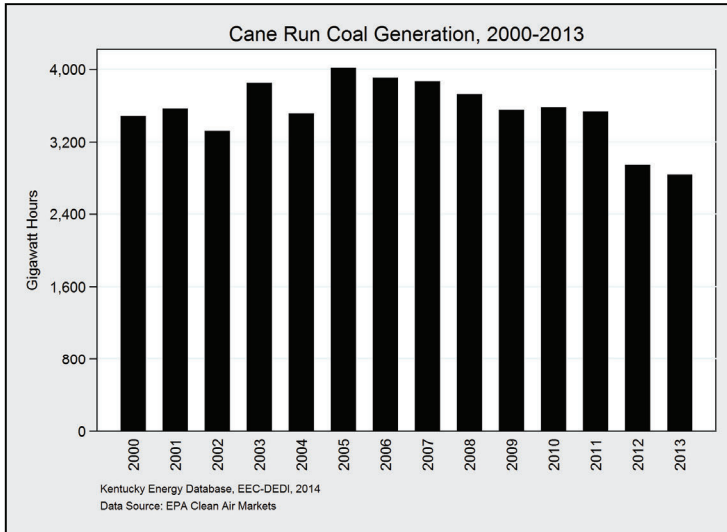
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	1,964	-96.1%
Rate (lbs./MWh)	1.17	-94.4%

The E.W. Brown Generating Station emitted 1,964 tons of SO₂ in 2013, a decrease of 96 percent since 2000. The rate of SO₂ emissions reduced by 94 percent during that period.

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	3,515	-64.3%
Rate (lbs./MWh)	2.10	-48.6%

The E.W. Brown Generating Station emitted 3,515 tons of NO_x in 2013, a reduction of 64 percent since 2000. The rate of NO_x emissions decreased by 49 percent during that period.

Cane Run Station



Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
4	1962	Coal	Baseload	56.9	155	772,838	1,926	4.08	3.38
5	1966	Coal	Baseload	65.0	168	957,314	2,018	4.86	3.79
6	1969	Coal	Baseload	52.9	240	1,112,049	1,933	4.26	2.68

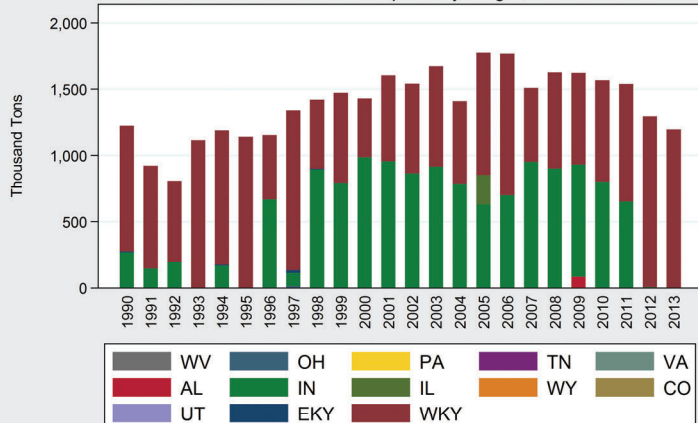
Cane Run Station, located in Jefferson County, began operation in 1954 and currently consists of three coal-fired electricity generating units. The plant had six units at one time, but three coal units were retired by 1987. The units currently operating came online in 1962, 1966, and 1969, respectively. The plant has a total nameplate capacity of 563 MW. In 2013, the plant generated 2.8 GWh of electricity, down from 4 GWh in 2005. Likewise, Cane Run's plant-wide capacity factor was 58 percent in 2013. This decline in generation is consistent with the announced retirement of Cane Run's coal units by 2016. The plant burned only coal from Hopkins and Ohio counties in western Kentucky in 2013, a large change from the 2000s when it burned around 50 percent Indiana coal. Louisville Gas & Electric plans to install a 640 MW natural gas combined-cycle generating unit at Cane Run in place of the retired coal units and to begin operation by May 2015.

Source: EPA Clean Air Markets and Louisville Gas & Electric website

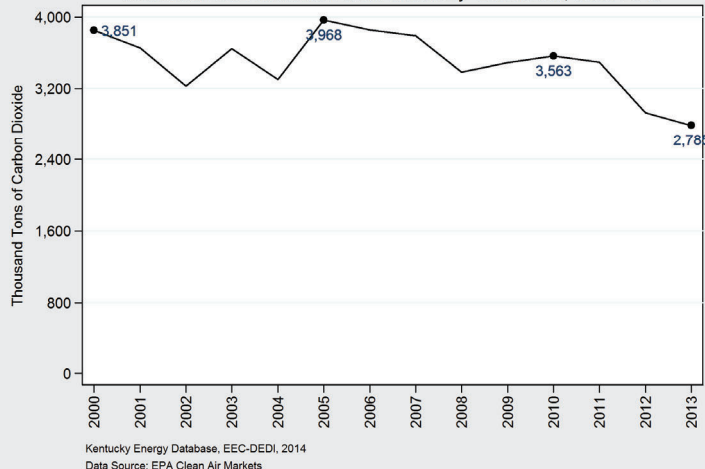
*2013

Cane Run Station

Cane Run Coal Consumption by Origin, 1990-2013



Cane Run CO₂ Emissions from Electricity Generation, 2000-2013



State	2013 Tons	Percentage
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Total	1,193,549	100%
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Western Kentucky	1,193,549	100%
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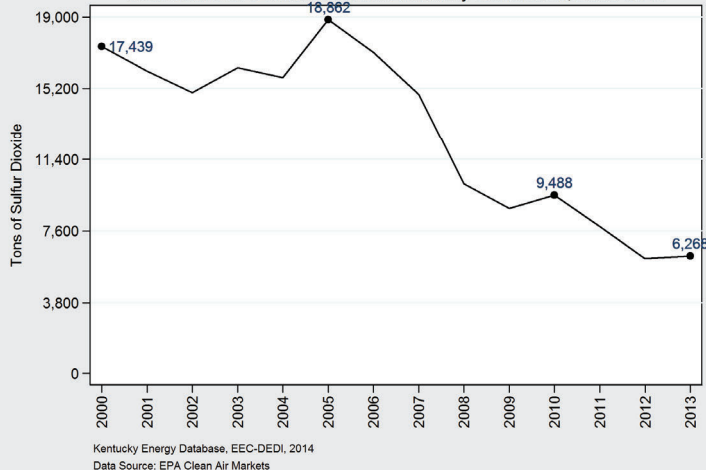
Carbon Dioxide	2013	Since 2000
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Emissions (Tonnage)	2,784,777	-27.7%
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Rate (lbs./MWh)	1,960	-11.3%
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Cane Rume Station emitted 2.8 million tons of CO₂ in 2013, a decrease of 28 percent since 2000. The rate of CO₂ emissions decreased by 11 percent over the same period.

Cane Run SO₂ Emissions from Electricity Generation, 2000-2013



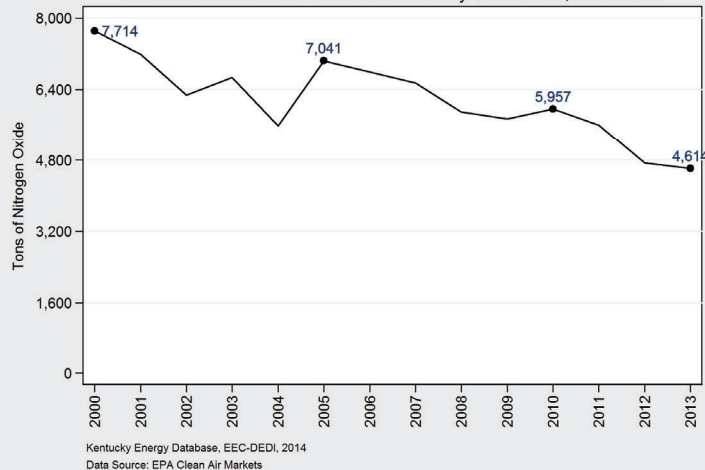
Sulfur Dioxide	2013	Since 2000
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Emissions (Tonnage)	6,268	-64.1%
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Rate (lbs./MWh)	4.41	-55.9%
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Cane Rume Station emitted 6,268 tons of SO₂ in 2013, a decrease of 64 percent since 2000. The rate of SO₂ emissions reduced by 56 percent during that period.

Cane Run NO_x Emissions from Electricity Generation, 2000-2013



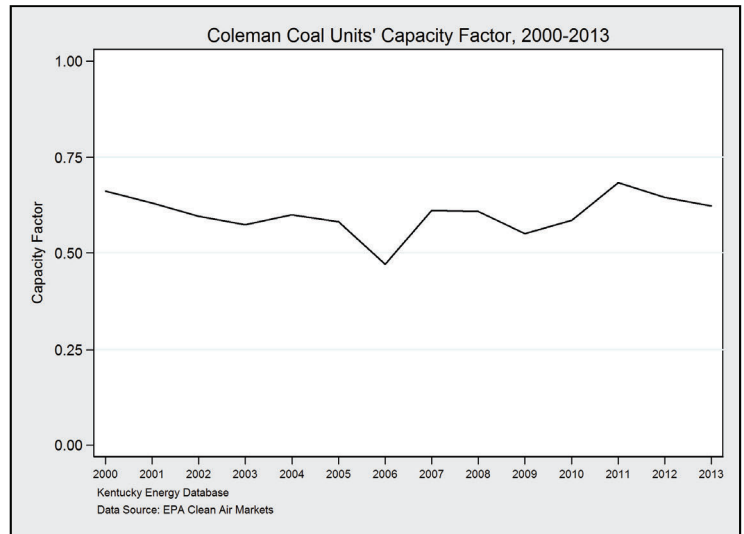
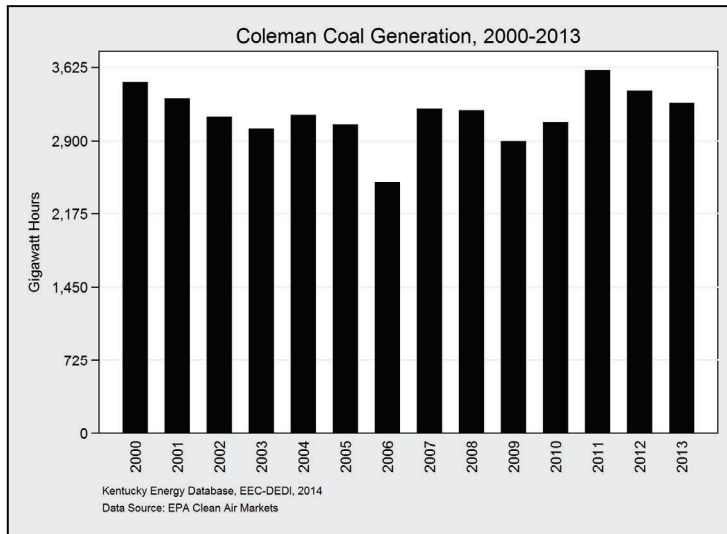
Nitrogen Dioxide	2013	Since 2000
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Emissions (Tonnage)	4,614	-40.2%
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Rate (lbs./MWh)	3.25	-26.6%
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Cane Rume Station emitted 4,614 tons of NO_x in 2013, a reduction of 40 percent since 2000. The rate of NO_x emissions decreased by 27 percent during that period.

Kenneth C. Coleman Station



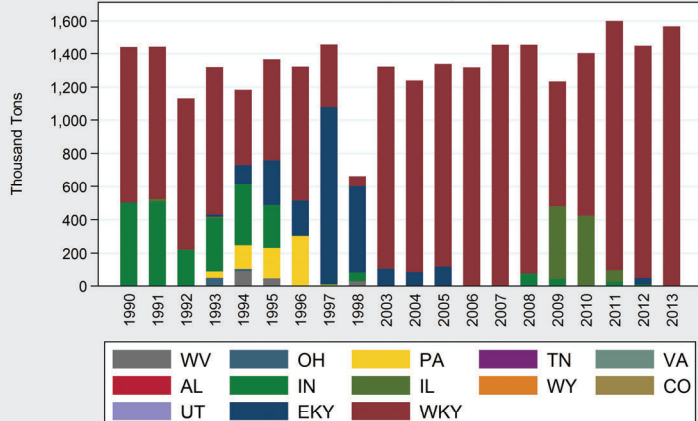
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1969	Coal	Baseload	57.8	205	1,038,152	2,168	4.31	3.64
2	1970	Coal	Baseload	61.5	205	1,103,576	2,153	3.71	3.68
3	1971	Coal	Baseload	67.4	192	1,133,202	2,280	6.82	3.85

Kenneth C. Coleman Station, located in Hancock County, is 45 years old and consists of three coal-fired electricity generating units. The units came online in 1969, 1970, and 1971, respectively. The plant has a total nameplate capacity of 602 MW. In 2013, the plant generated 3.2 GWh of electricity and had a plant-wide capacity factor of 62 percent. Coleman is currently idled. The plant exclusively used coal from western Kentucky in 2013, and the region has been the major source of its coal for the past decade.

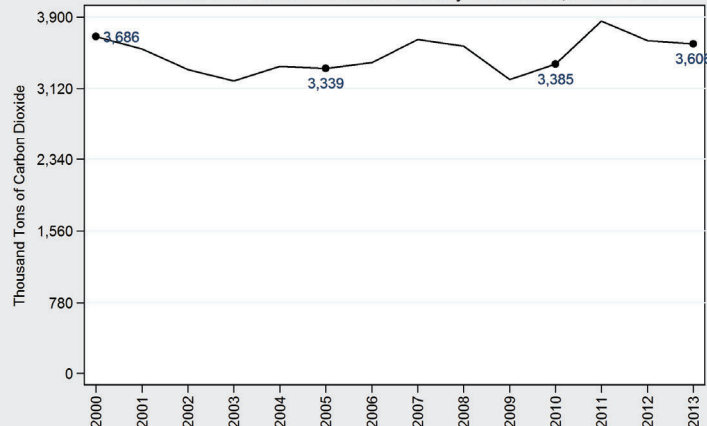
*2013

Kenneth C. Coleman Station

Coleman Coal Consumption by Origin, 1990-2013



Coleman CO2 Emissions from Electricity Generation, 2000-2013



State	2013 Tons	Percentage
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Total	1,567,829	100%
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Western Kentucky	1,567,829	100%
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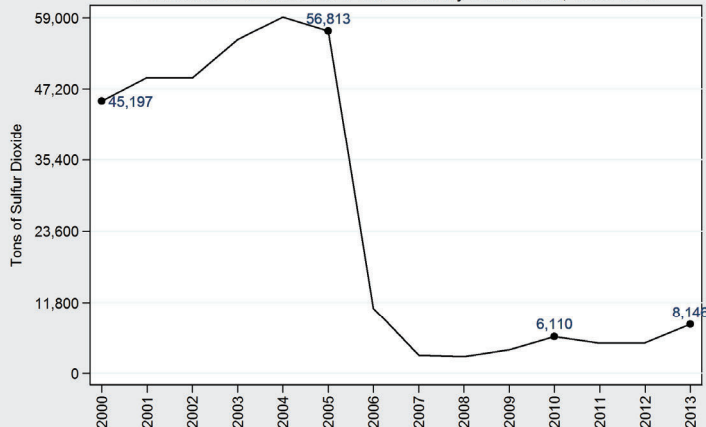
Carbon Dioxide	2013	Since 2000
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Emissions (Tonnage)	3,605,704	-2.2%
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Rate (lbs./MWh)	2,202	+4.0%
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The Kenneth C. Coleman Station emitted 3.6 million tons of CO₂ in 2013, a marginal decrease of 2 percent since 2000. At a rate of 2,202 lbs. of CO₂ per MWh, Coleman is the most carbon-intensive electricity generating unit in Kentucky.

Coleman SO2 Emissions from Electricity Generation, 2000-2013



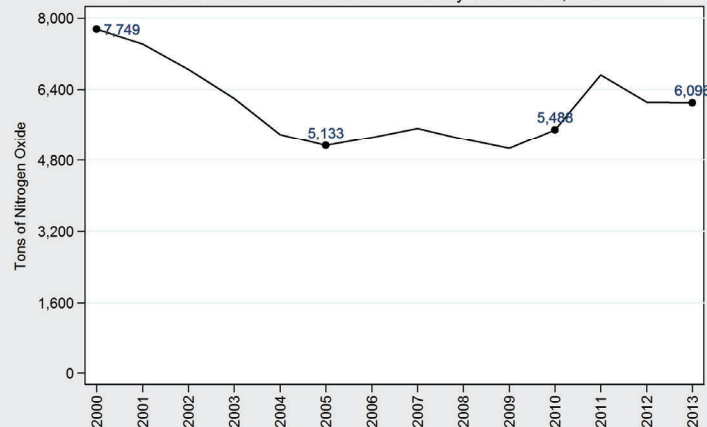
Sulfur Dioxide	2013	Since 2000
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Emissions (Tonnage)	8,146	-82.0%
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Rate (lbs./MWh)	4.97	-80.9%
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The Kenneth C. Coleman Station emitted 8,146 tons of SO₂ in 2013, a decrease of 82 percent since 2000. The rate of SO₂ emissions reduced by 81 percent during that period.

Coleman NOx Emissions from Electricity Generation, 2000-2013



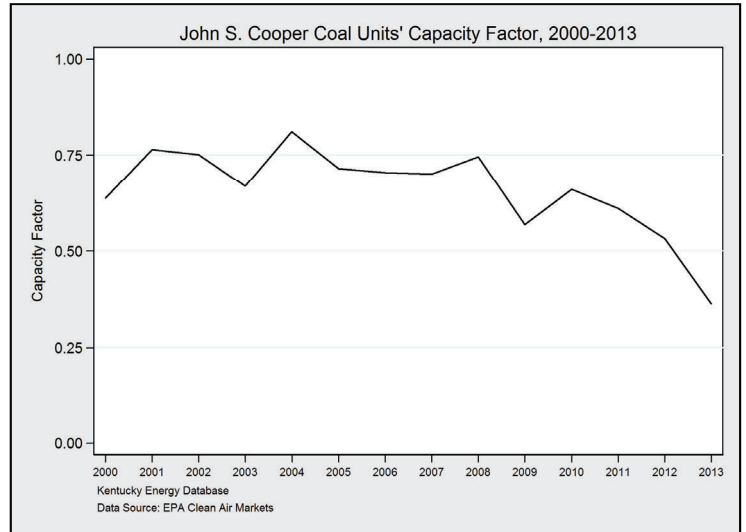
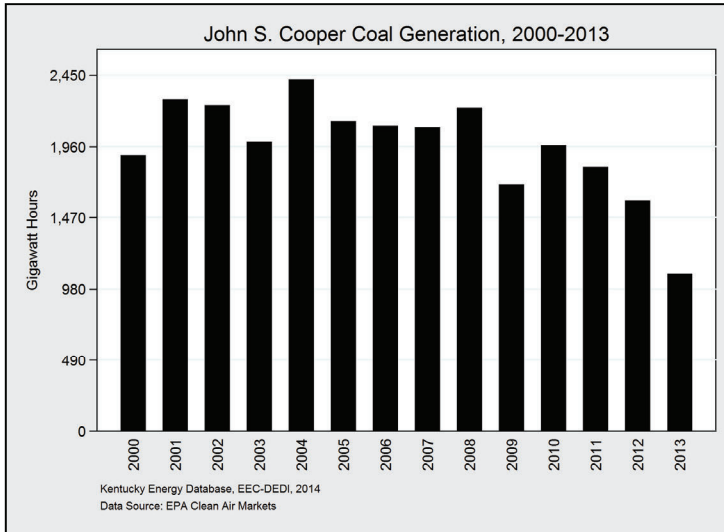
Nitrogen Dioxide	2013	Since 2000
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Emissions (Tonnage)	6,096	-21.3%
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Rate (lbs./MWh)	3.72	-16.4%
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The Kenneth C. Coleman Station emitted 6,096 tons of NO_x in 2013, a reduction of 21 percent since 2000. The rate of NO_x emissions decreased by 16 percent during that period.

John S. Cooper Power Station

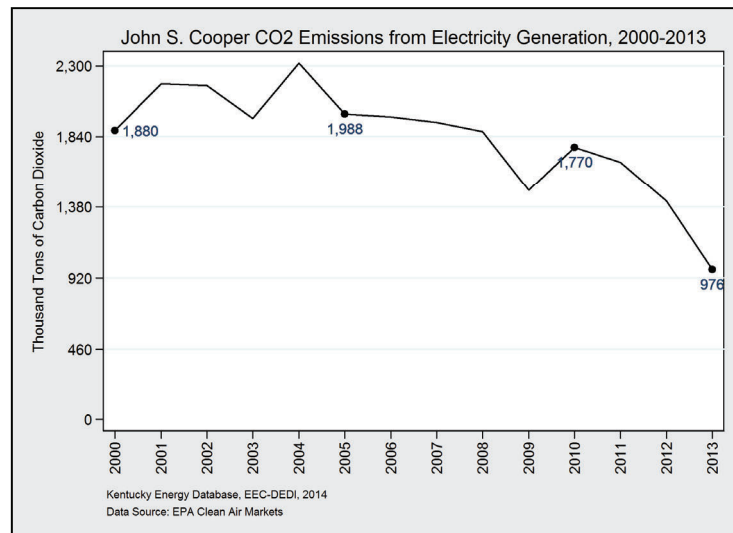
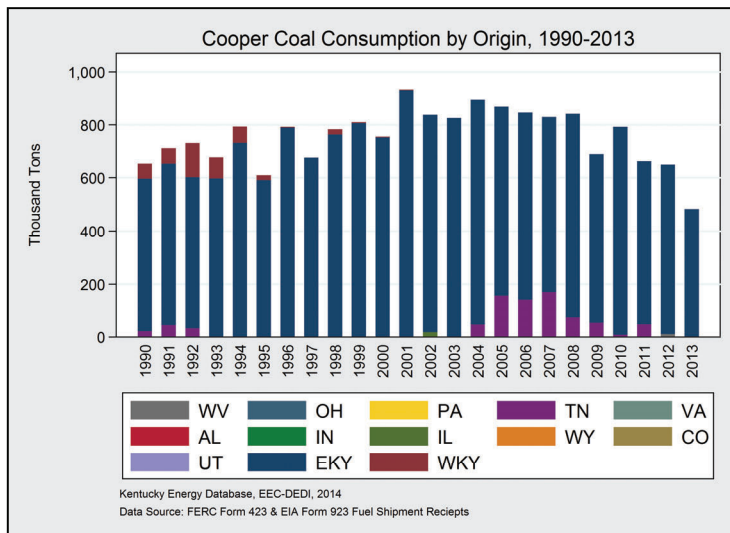


Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1965	Coal	Baseload	45.5	116	462,562	1,822	12.16	2.28
2	1969	Coal	Baseload	31.6	225	622,793	1,780	5.75	1.27

The John S. Cooper Power Station, located in Pulaski County, is 49 years old and consists of two coal-fired electricity generating units. The units came online in 1965 and 1969, respectively. The plant has a total nameplate capacity of 341 MW. In 2013, the plant generated 1.08 GWh of electricity and had a plant-wide capacity factor of 36 percent. A scrubber was installed on unit 2 in 2012 to lower sulfur dioxide emissions. Cooper sourced all of its coal from eastern Kentucky in 2013 from Perry, Leslie, McCreary, Bell, and Knox counties.

*2013

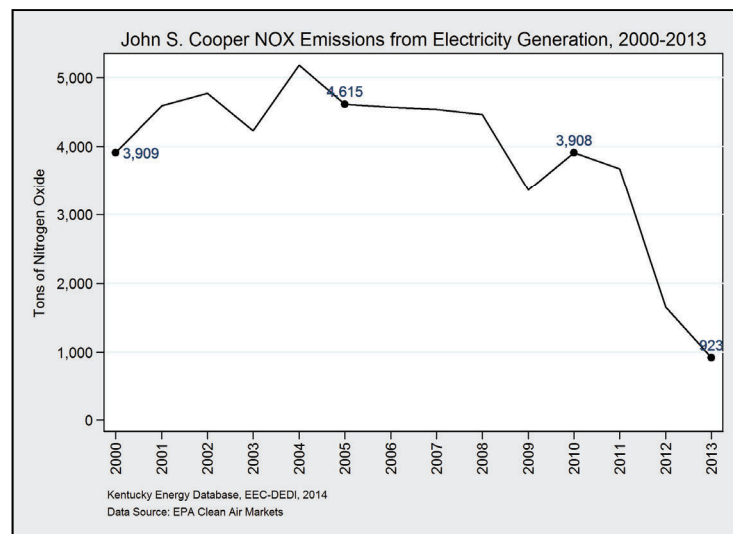
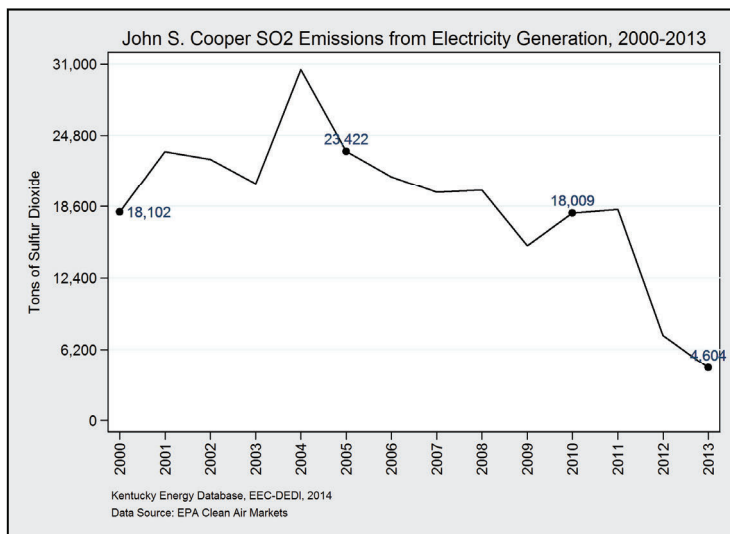
John S. Cooper Power Station



State	2013 Tons	Percentage
Total	482,506	100%
Eastern Kentucky	482,506	100%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	975,769	-48.1%
Rate (lbs./MWh)	1,798	-9.0%

The John S. Cooper Power Station emitted 976 thousand tons of CO₂ in 2013, a decrease of 48 percent since 2000. The rate of CO₂ emissions decreased by 9 percent during that period.



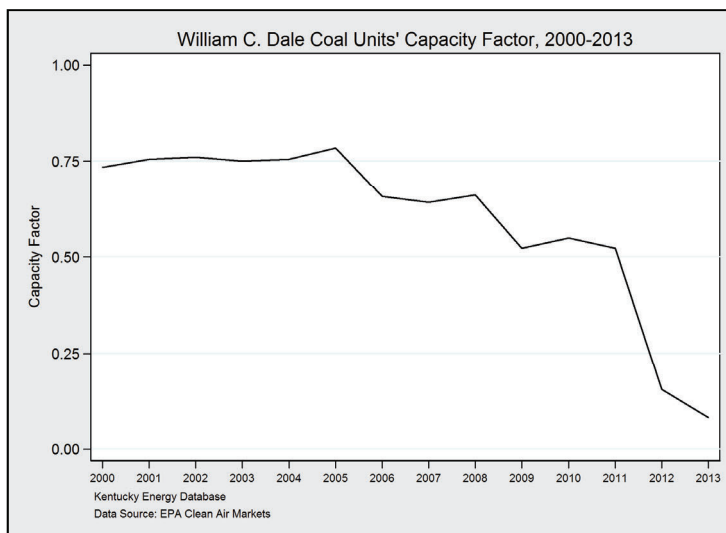
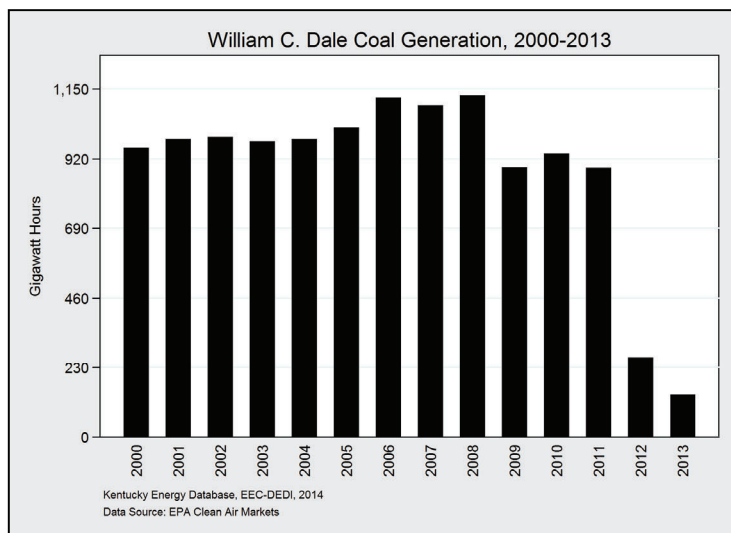
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	4,604	-74.6%
Rate (lbs./MWh)	8.48	-55.4%

The John S. Cooper Power Station emitted 4,604 tons of SO₂ in 2013, a decrease of 75 percent since 2000. The rate of SO₂ emissions reduced by 55 percent during that period.

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	923	-76.4%
Rate (lbs./MWh)	1.70	-58.6%

The John S. Cooper Power Station emitted 923 tons of NO_x in 2013, a reduction of 76 percent since 2000. The rate of NO_x emissions decreased by 59 percent during that period.

William C. Dale Power Station



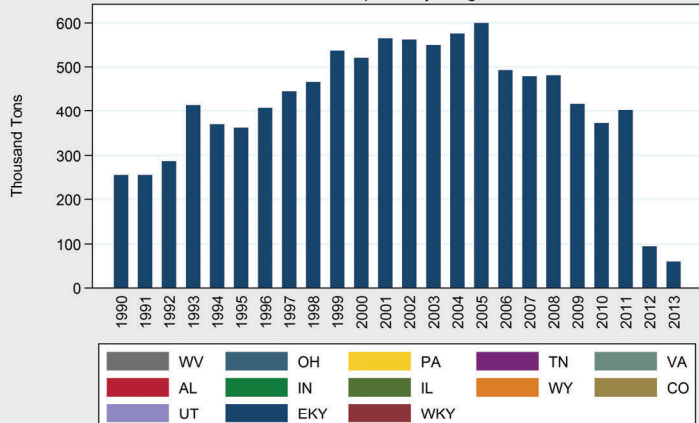
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1954	Coal	Baseload	0.0%	23	0	0	0	0
2	1954	Coal	Baseload	0.0%	23	0	0	0	0
3	1957	Coal	Baseload	10.3%	74	67,085	1,894	12.94	3.63
4	1960	Coal	Baseload	11.1%	75	72,802	1,894	12.92	3.60

The William C. Dale Power Station, located in Clark County, is 60 years old and consists of four coal-fired electricity generating units. The units came online in 1954, 1957, and 1960. The plant has a total nameplate capacity of 195 MW. In 2013, the plant generated 139,888 MWh of electricity, down from 1.12 GWh in 2008. This decline in generation is consistent with plans to retire units 1 and 2 in 2014 and units 3 and 4 in 2016. Dale's capacity factor in 2013 was only 8 percent. Dale sources all of its coal from eastern Kentucky.

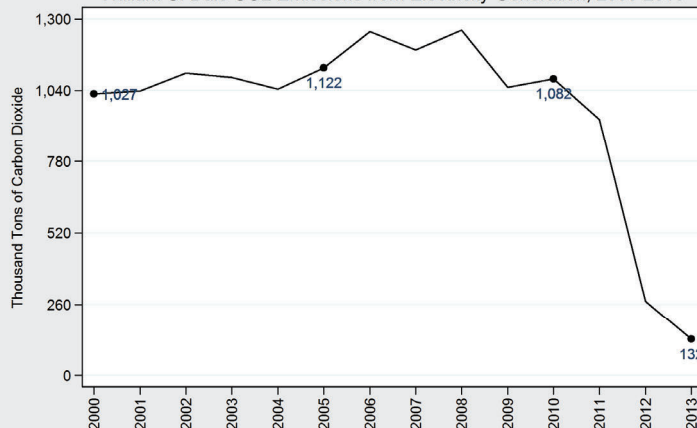
*2013

William C. Dale Power Station

Dale Coal Consumption by Origin, 1990-2013



William C. Dale CO2 Emissions from Electricity Generation, 2000-2013



State	2013 Tons	Percentage
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Total	60,751	100%
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Eastern Kentucky	60,751	100%
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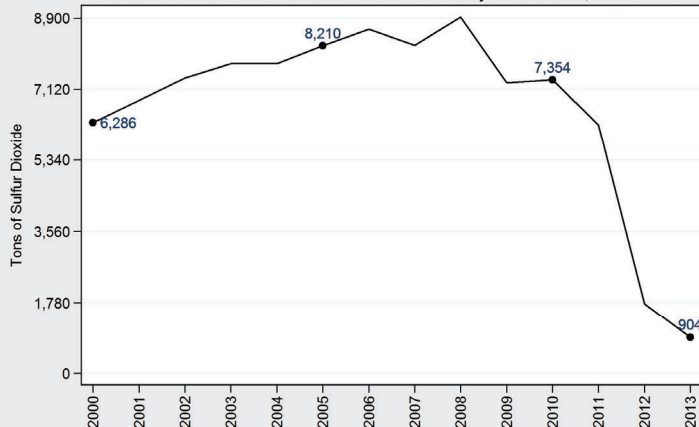
Carbon Dioxide	2013	Since 2000
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Emissions (Tonnage)	132,479	-87.1%
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Rate (lbs./MWh)	1,894	-11.7%
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The William C. Dale Power Station emitted 132 thousand tons of CO₂ in 2013, a decrease of 87 percent since 2000. The rate of CO₂ emissions decreased by 12 percent during that period.

William C. Dale SO2 Emissions from Electricity Generation, 2000-2013



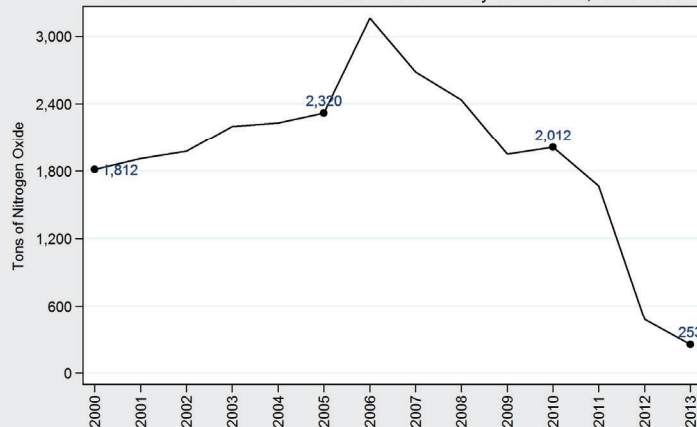
Sulfur Dioxide	2013	Since 2000
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Emissions (Tonnage)	904	-85.6%
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Rate (lbs./MWh)	12.93	-1.5%
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The William C. Dale Power Station emitted 904 tons of SO₂ in 2013, a decrease of 86 percent since 2000. The rate of SO₂ emissions reduced by 2 percent during that period.

William C. Dale NOX Emissions from Electricity Generation, 2000-2013



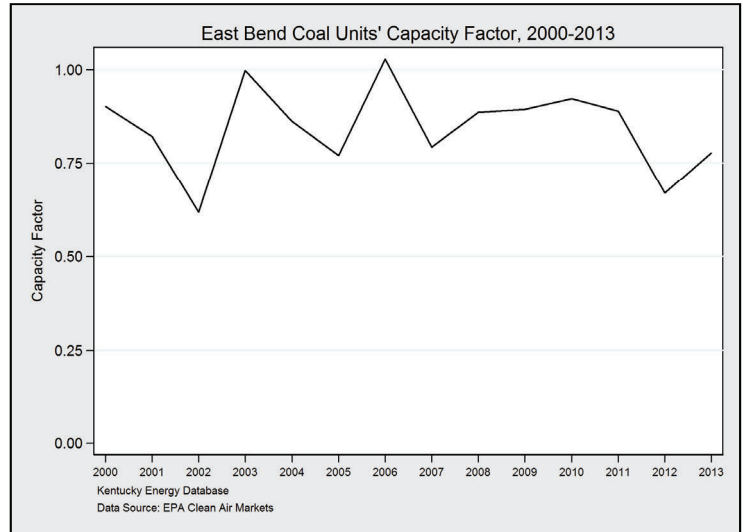
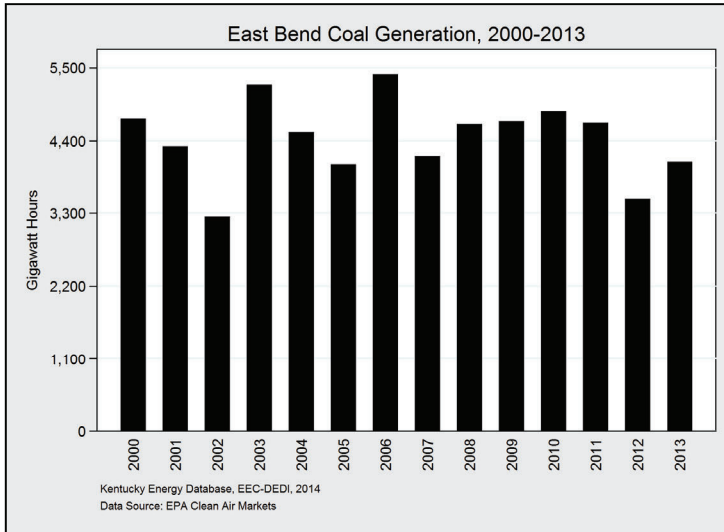
Nitrogen Dioxide	2013	Since 2000
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Emissions (Tonnage)	253	-86.0%
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Rate (lbs./MWh)	3.62	-4.4%
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The William C. Dale Power Station emitted 253 tons of NO_x in 2013, a reduction of 86 percent since 2000. The rate of NO_x emissions decreased by 4 percent during that period.

East Bend Generating Station



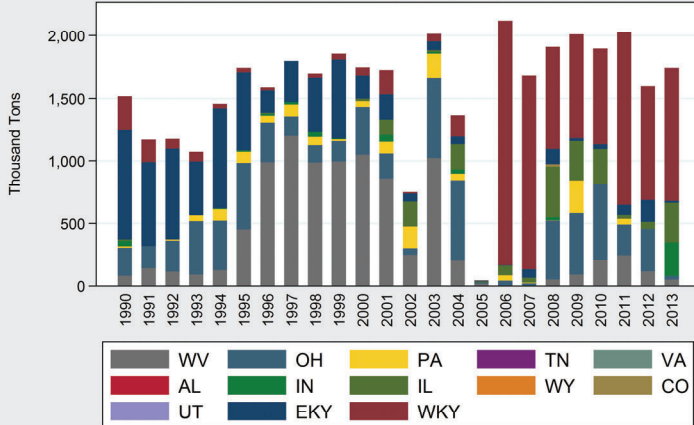
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1981	Coal	Baseload	77.8	600	4,086,976	1,896	1.08	1.71

The East Bend Generating Station, located in Boone County, is 33 years old and consists of one coal-fired electricity generating unit. The unit came online in 1981 and has a nameplate capacity of 600 MW. In 2013, the plant generated 4 TWh of electricity and had a capacity factor of 78 percent. After the installation of sulfur dioxide scrubbers in 2005, East Bend began shifting its consumption of low-sulfur coal from West Virginia to that of western Kentucky, which has a relatively higher sulfur content. In 2013, East Bend used a mix of coal from western Kentucky, Indiana, and Illinois.

*2013

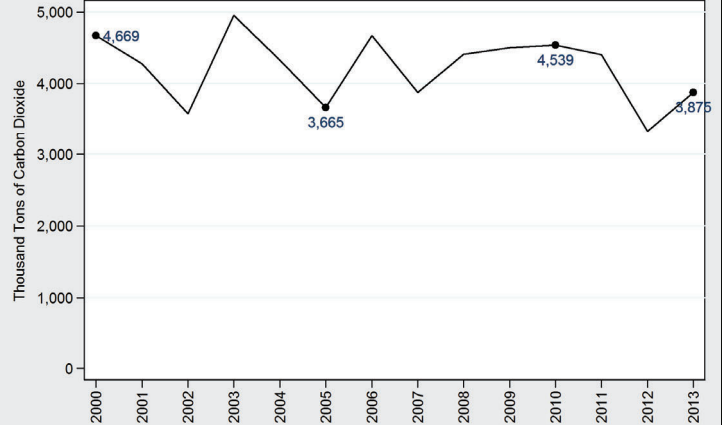
East Bend Generating Station

East Bend Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

East Bend CO₂ Emissions from Electricity Generation, 2000-2013



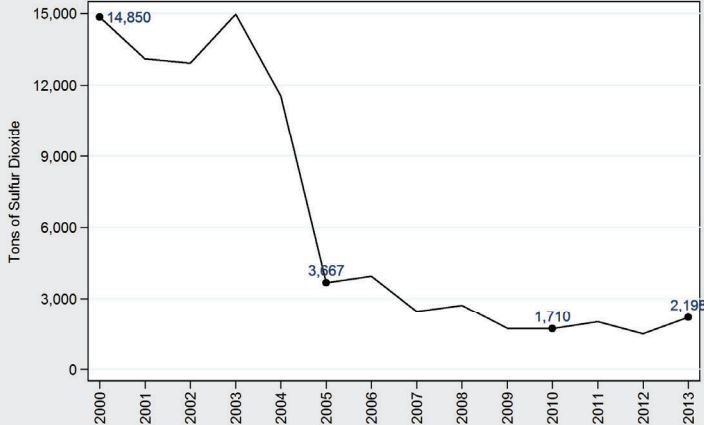
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	1,741,221	100%
Western Kentucky	1,062,012	61.0%
Illinois	314,406	18.1%
Indiana	272,007	15.6%
West Virginia	50,111	2.9%
Ohio	28,691	1.6%
Eastern Kentucky	13,994	0.8%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	3,874,911	-17.0%
Rate (lbs./MWh)	1,896	-3.8%

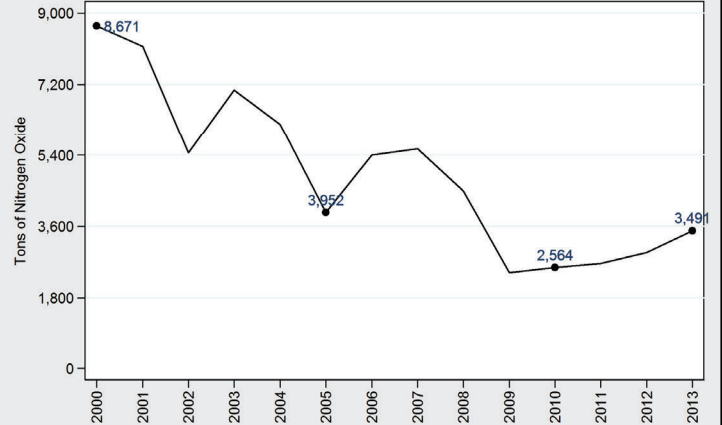
The East Bend Generating Station emitted 3.9 million tons of CO₂ in 2013, a decrease of 17 percent since 2000. The rate of CO₂ emissions decreased by 4 percent during that period.

East Bend SO₂ Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

East Bend NO_x Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

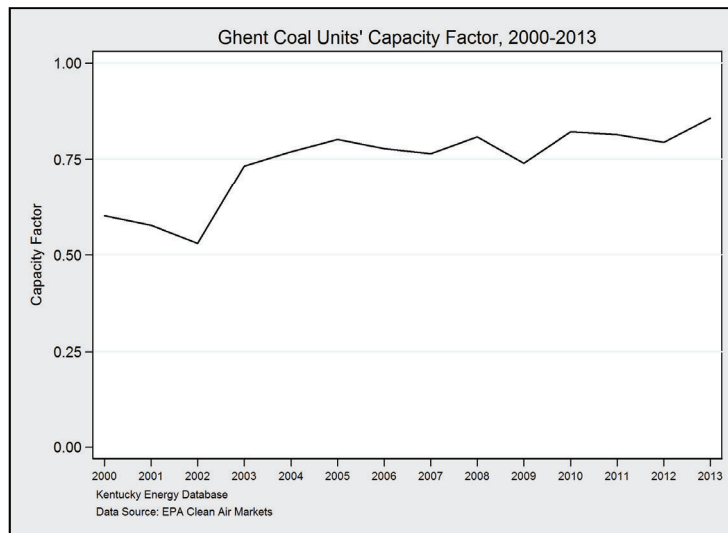
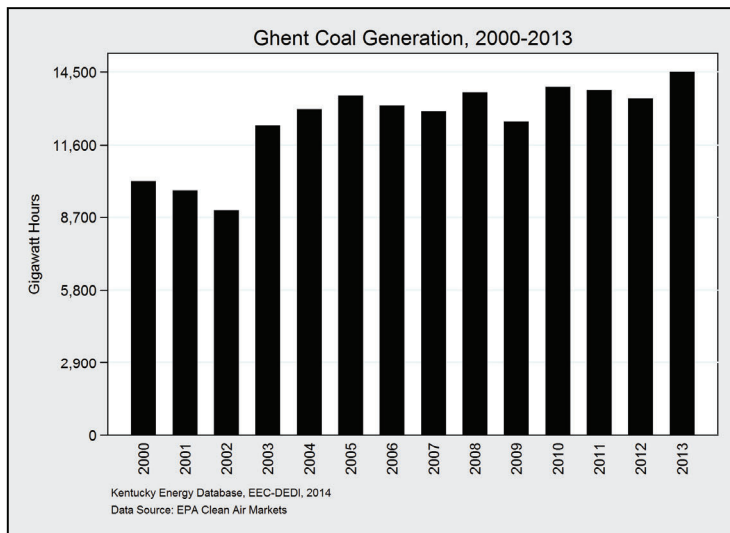
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	2,198	-85.2%
Rate (lbs./MWh)	1.08	-82.8%

The East Bend Generating Station emitted 2,198 tons of SO₂ in 2013, a decrease of 85 percent since 2000. The rate of SO₂ emissions reduced by 83 percent during that period.

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	3,491	-59.7%
Rate (lbs./MWh)	1.71	-53.3%

The East Bend Generating Station emitted 3,491 tons of NO_x in 2013, a reduction of 60 percent since 2000. The rate of NO_x emissions decreased by 53 percent during that period.

Ghent Generating Station



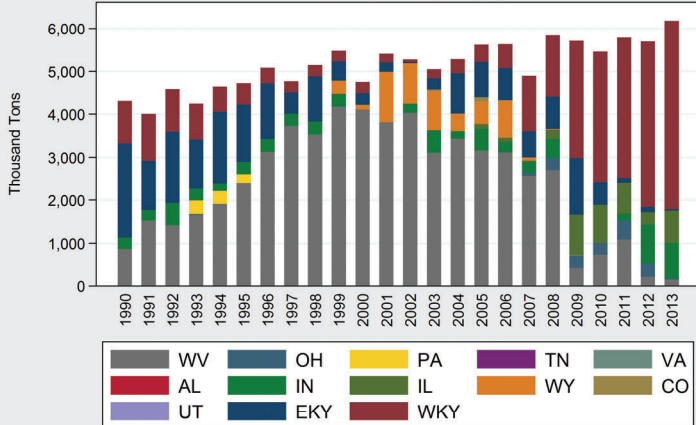
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1974	Coal	Baseload	85.7	479	3,596,641	2,008	0.82	1.06
2	1977	Coal	Baseload	89.2	495	3,866,907	1,933	3.27	2.03
3	1981	Coal	Baseload	85.8	489	3,674,511	1,939	2.70	1.85
4	1984	Coal	Baseload	82.0	469	3,370,706	1,782	0.39	1.67

The Ghent Generating Station, located in Carroll County, began operation in 1973 and consists of four coal-fired electricity generating units. The units came online in 1974, 1977, 1981, and 1984, respectively. The plant has a total nameplate capacity of 1,932 MW, making it the largest of Kentucky Utilities' electricity plants. In 2013, the plant generated 14.5 GWh of electricity and had a plant-wide capacity factor of 86 percent, contributing more than any other plant to Kentucky's electricity grid. Three of the four units at Ghent underwent retrofits to control for sulfur dioxide emissions from 2007 to 2009. Ghent burned predominantly western Kentucky coal in 2013 from Union, Ohio, Muhlenberg, and Davies counties, sourcing smaller amounts from Indiana and Illinois. This is a significant change from the 2000s, when it used mostly coal from West Virginia.

*2013

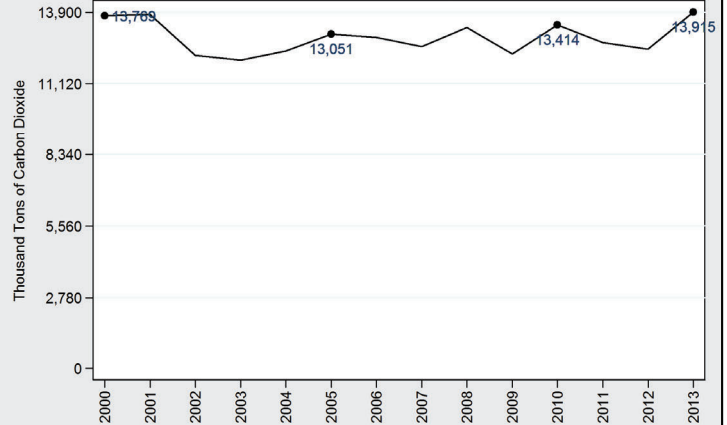
Ghent Generating Station

Ghent Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

Ghent CO₂ Emissions from Electricity Generation, 2000-2013



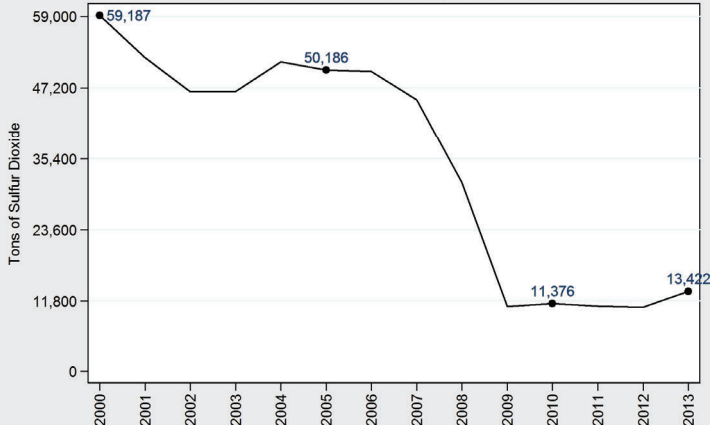
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	6,185,463	100%
Western Kentucky	4,389,955	71.0%
Illinois	837,521	13.5%
Indiana	740,663	12.0%
West Virginia	144,921	2.3%
Eastern Kentucky	40,085	0.6%
Ohio	29,255	0.5%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	13,914,794	+1.1%
Rate (lbs./MWh)	1,918	-29.2%

The Ghent Generating Station emitted 13.9 million tons of CO₂ in 2013, an increase of 1 percent since 2000. The rate of CO₂ emissions decreased by 29 percent during that period.

Ghent SO₂ Emissions from Electricity Generation, 2000-2013

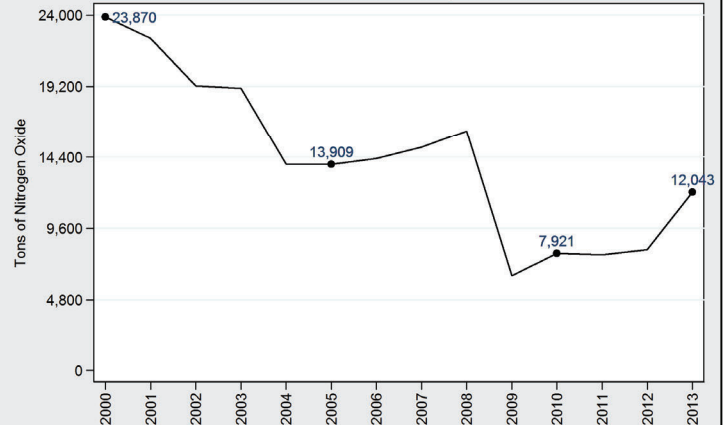


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	13,422	-77.3%
Rate (lbs./MWh)	1.85	-84.1%

The Ghent Generating Station emitted 13 thousand tons of SO₂ in 2013, a decrease of 77 percent since 2000. The rate of SO₂ emissions reduced by 84 percent during that period.

Ghent NO_x Emissions from Electricity Generation, 2000-2013

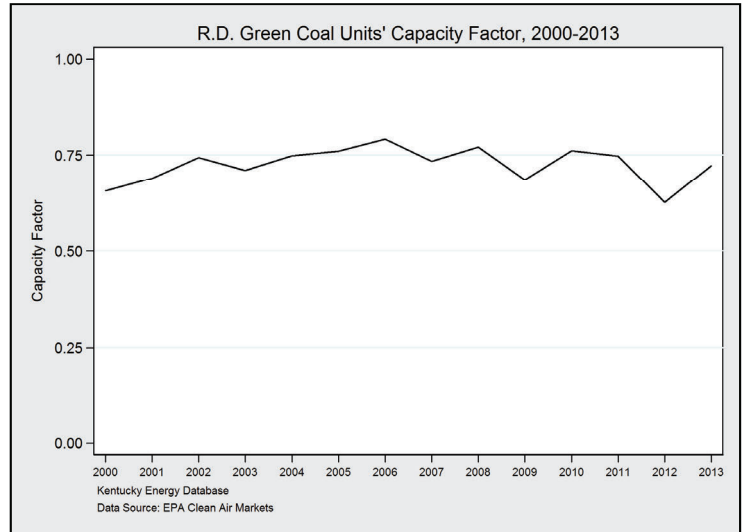
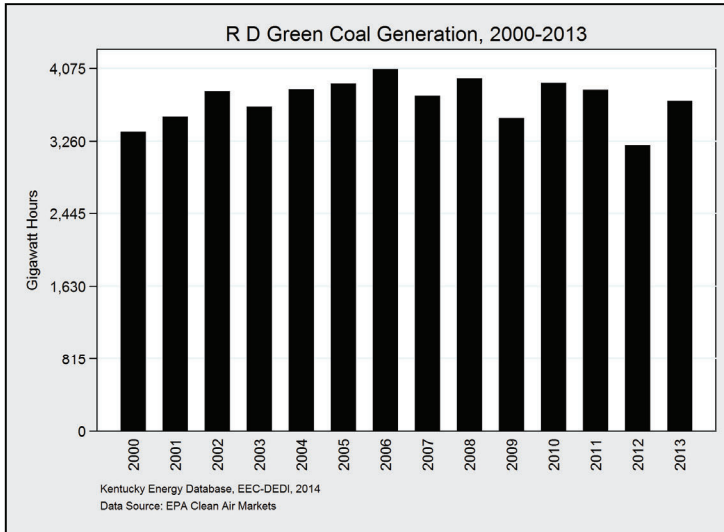


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	12,043	-49.6%
Rate (lbs./MWh)	1.66	-64.6%

The Ghent Generating Station emitted 12 thousand tons of NO_x in 2013, a reduction of 50 percent since 2000, but the second-highest emitter in the state. The rate of NO_x emissions decreased by 65 percent since 2000.

R.D. Green Station



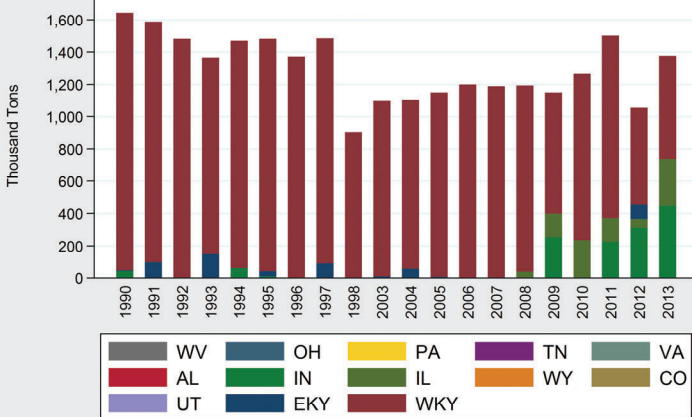
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1979	Coal	Baseload	71.3	293	1,829,145	2,078	2.95	2.20
2	1981	Coal	Baseload	73.3	293	1,881,497	2,139	1.99	2.31

The R.D. Green Station, located in Webster County, is 35 years old and consists of two coal-fired electricity generating units. The units came online in 1979 and 1981, respectively. The plant has a total nameplate capacity of 586 MW. In 2013, the plant generated 3.7 GWh of electricity and had a plant-wide capacity factor of 72 percent. Green used a mix of coal from western Kentucky (46 percent) from Union, Hopkins, and Webster counties, Indiana (33 percent), and Illinois (21 percent) in 2013.

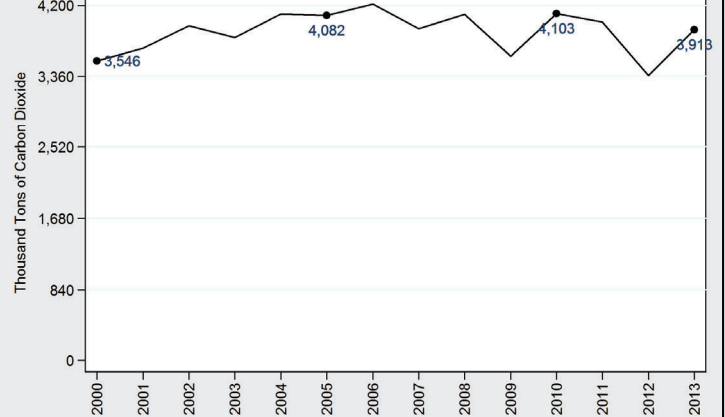
*2013

R.D. Green Station

R D Green Coal Consumption by Origin, 1990-2013



R D Green CO₂ Emissions from Electricity Generation, 2000-2013

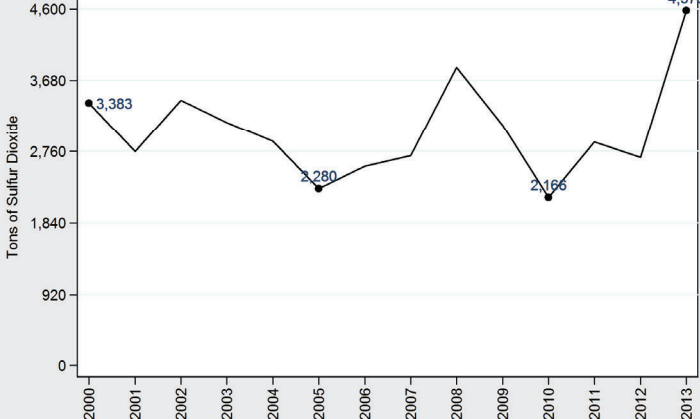


State	2013 Tons	Percentage
Total	1,376,431	100.00%
Western Kentucky	638,218	46.4%
Indiana	447,784	32.5%
Illinois	290,429	21.1%

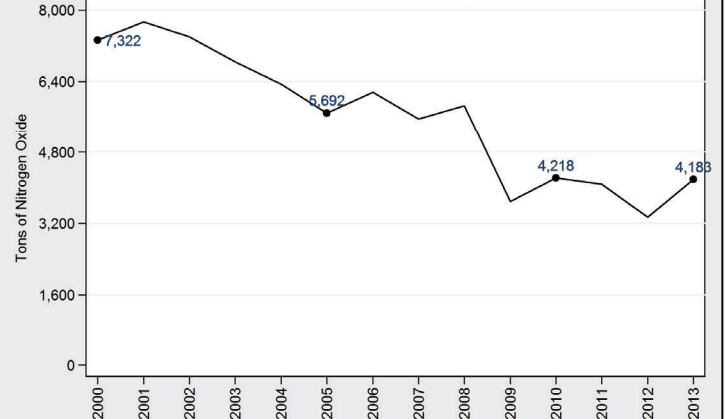
Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	3,912,971	+10.3%
Rate (lbs./MWh)	2,109	+0.2%

The R.D. Green Station emitted 3.9 million tons of CO₂ in 2013, an increase of 10 percent since 2000. The rate of CO₂ emissions increased marginally during that period.

R D Green SO₂ Emissions from Electricity Generation, 2000-2013



R D Green NO_x Emissions from Electricity Generation, 2000-2013



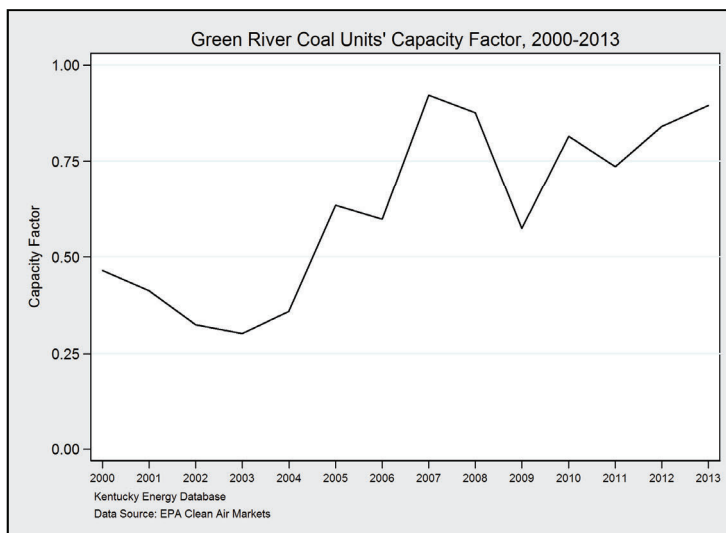
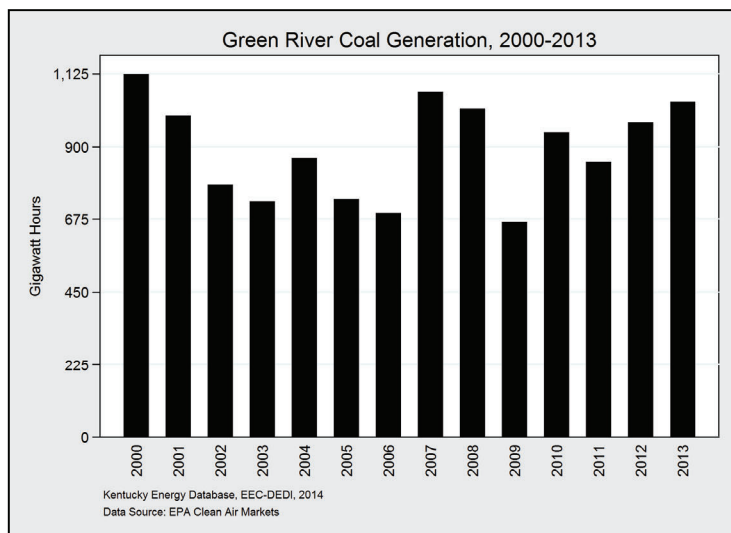
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	4,578	+35.3%
Rate (lbs./MWh)	2.47	+22.9%

The R.D. Green Station emitted 4,578 tons of SO₂ in 2013, an increase of 35 percent since 2000. The rate of SO₂ emissions increased by 23 percent during that period.

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	4,183	-42.9%
Rate (lbs./MWh)	2.26	-48.1%

The R.D. Green Station emitted 4,183 tons of NO_x in 2013, a reduction of 43 percent since 2000. The rate of NO_x emissions decreased by 48 percent during that period.

Green River Generating Station



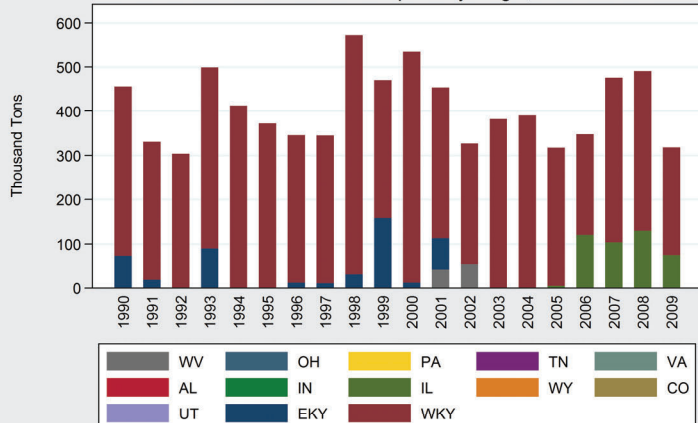
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
4	1959	Coal	Baseload	40.6	95	337,595	2,546	46.67	5.42
5	1950	Coal	Baseload	66.7	120	701,034	1,849	34.58	3.87

The Green River Generating Station, located in Muhlenberg County, is 64 years old and consists of two coal-fired electricity generating units. The units came online in 1950 and 1959, respectively. The plant has a total nameplate capacity of 215 MW. In 2013, the plant generated slightly more than 1.04 GWh of electricity and had a plant-wide capacity factor of 66 percent. Most of the coal burned at Green River has originated in western Kentucky since at least 1990. Kentucky Utilities has announced that the Green River plant will close by 2016.

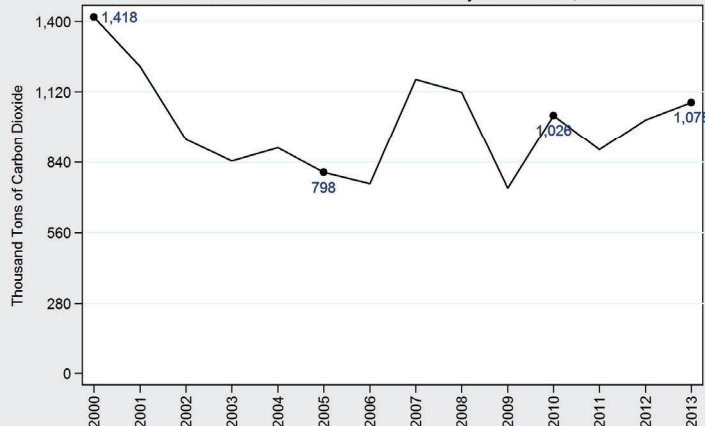
*2013

Green River Generating Station

Green River Coal Consumption by Origin, 1990-2009



Green River CO₂ Emissions from Electricity Generation, 2000-2013

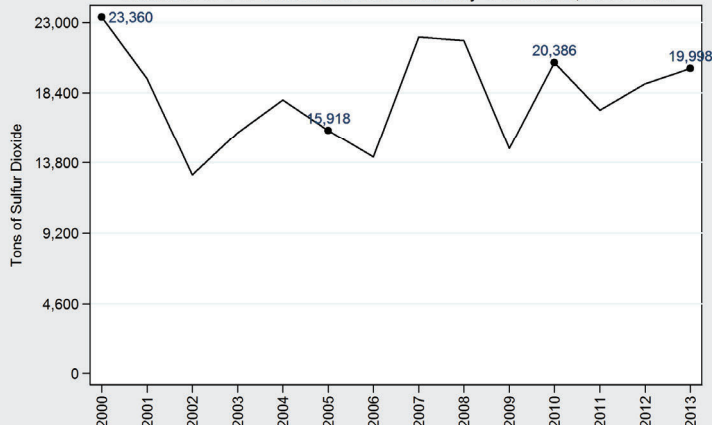


State	2009 Tons	Percentage
Total	318,193	100%
Western Kentucky	243,180	76.4%
Illinois	75,013	23.6%

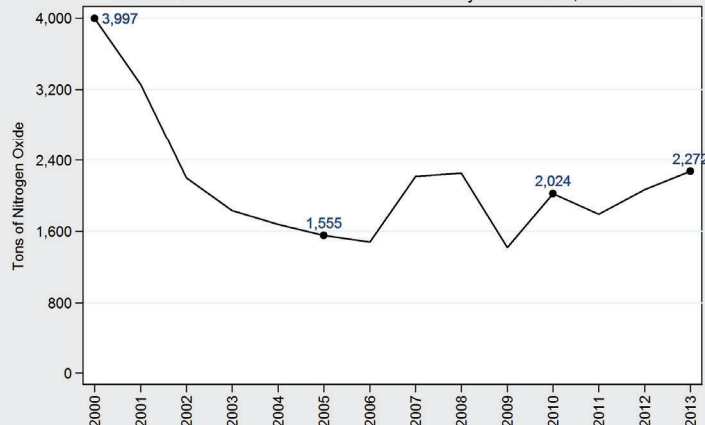
Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	1,077,921	-24.0%
Rate (lbs./MWh)	2,076	-17.8%

The Green River Generating Station emitted 1.1 million tons of CO₂ in 2013, a decrease of 24 percent since 2000. The rate of CO₂ emissions decreased by 18 percent during that period.

Green River SO₂ Emissions from Electricity Generation, 2000-2013



Green River NO_x Emissions from Electricity Generation, 2000-2013



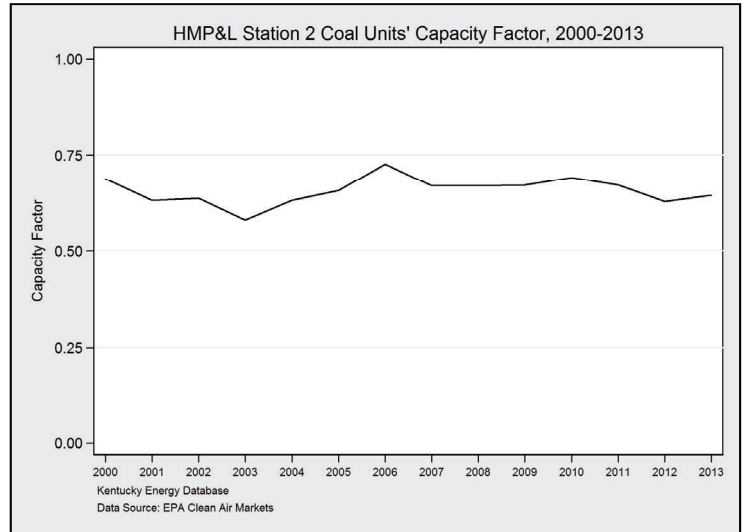
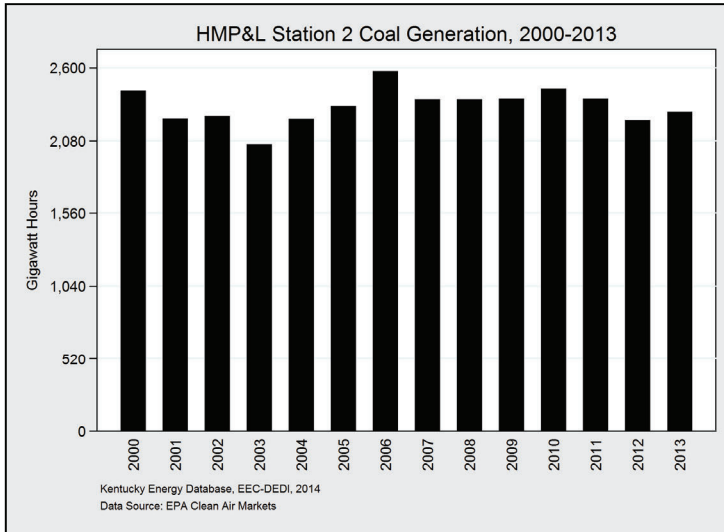
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	19,998	-14.4%
Rate (lbs./MWh)	38.51	-7.4%

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	2,272	-43.2%
Rate (lbs./MWh)	4.37	-38.5%

The Green River Generating Station emitted 20 thousand tons of SO₂ in 2013, a decrease of 14 percent since 2000. The rate of SO₂ emissions reduced by 7 percent during that period. As of 2013, Green River had the second-highest rate of SO₂ emissions in the state.

The Green River Generating Station emitted 2,272 tons of NO_x in 2013, a reduction of 43 percent since 2000. The rate of NO_x emissions decreased by 38 percent during that period.

Henderson Station



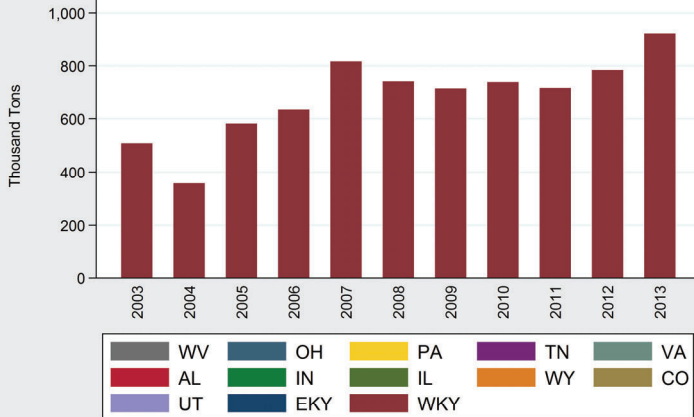
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1973	Coal	Baseload	70.4	200	1,233,868	2,027	4.23	0.85
2	1974	Coal	Baseload	58.6	205	1,052,045	2,068	4.29	0.74

Henderson Station, located in Webster County, is 41 years old and consists of two coal-fired electricity generating units. The units came online in 1973 and 1974, respectively. The plant has a total nameplate capacity of 405 MW. In 2013, the plant generated 2.3 GWh of electricity and had a plant-wide capacity factor of 64 percent. HMP&L used only coal from western Kentucky in 2013 from Hopkins and Union counties, just as it has since 2003.

*2013

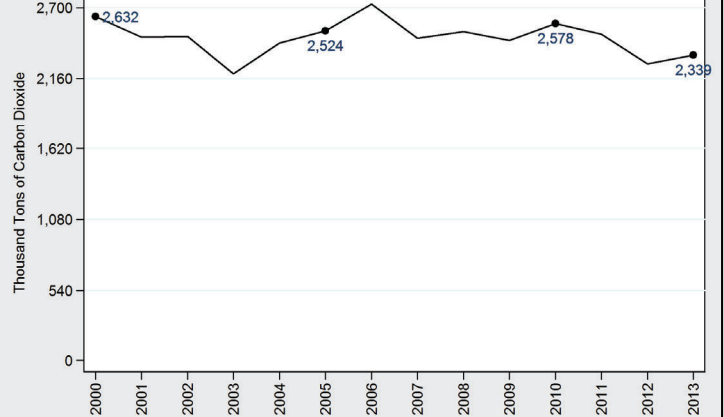
Henderson Station

HMP&L Station 2 Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

HMP&L Station 2 CO₂ Emissions from Electricity Generation, 2000-2013



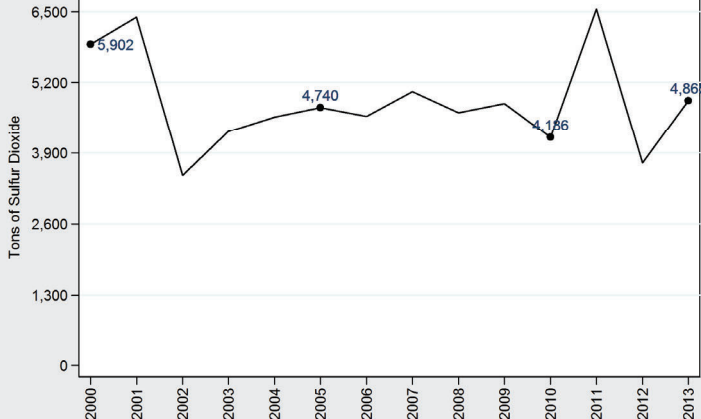
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	920,431	100%
Western Kentucky	920,431	100%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	2,338,508	-11.2%
Rate (lbs./MWh)	2,046	-5.2%

Henderson Station emitted 2.3 million tons of CO₂ in 2013, a decrease of 11 percent since 2000. The rate of CO₂ emissions decreased by 5 percent during that period.

HMP&L Station 2 SO₂ Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	4,865	-17.6%
Rate (lbs./MWh)	4.26	-12.1%

Henderson Station emitted 4,865 tons of SO₂ in 2013, a decrease of 18 percent since 2000. The rate of SO₂ emissions reduced by 12 percent during that period.

HMP&L Station 2 NO_x Emissions from Electricity Generation, 2000-2013

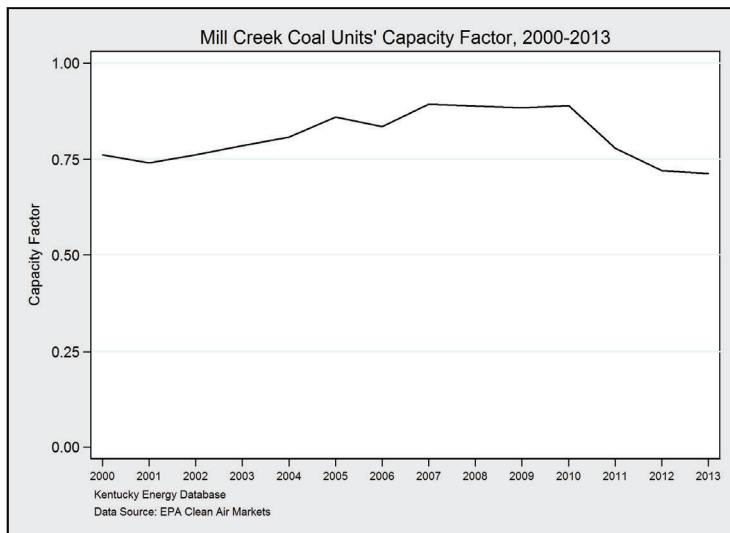
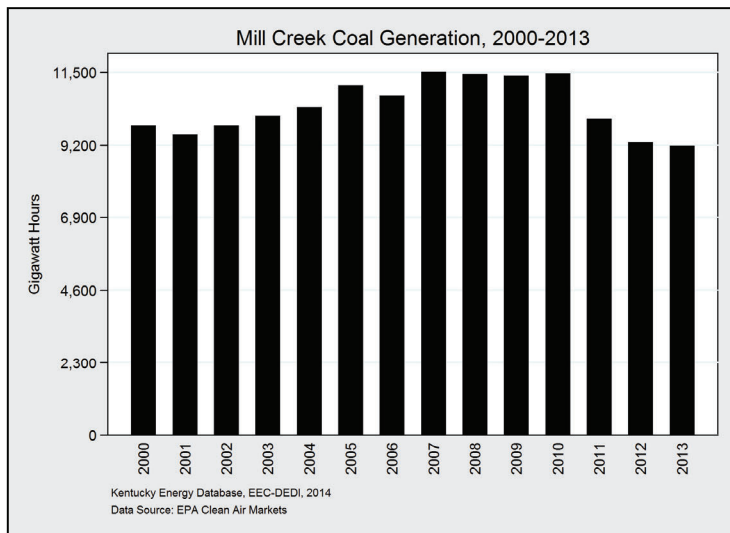


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	915	-84.9%
Rate (lbs./MWh)	0.80	-83.9%

Henderson Station emitted 915 tons of NO_x in 2013, a reduction of 85 percent since 2000. The rate of NO_x emissions decreased by 84 percent during that period.

Mill Creek Generating Station



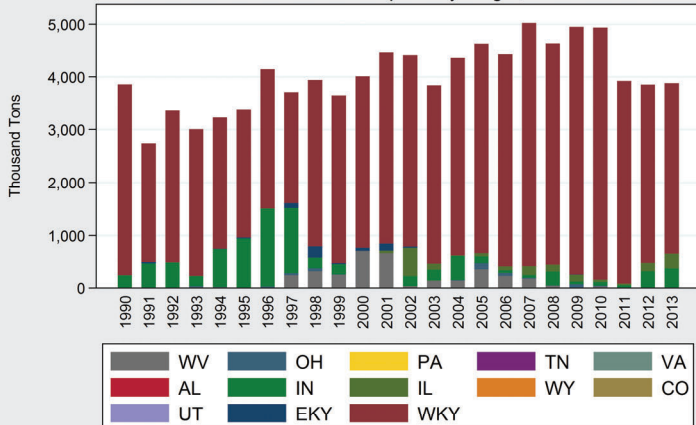
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1972	Coal	Baseload	62.3	303	1,654,602	1,812	5.66	2.54
2	1974	Coal	Baseload	81.7	301	2,155,136	1,825	6.06	2.62
3	1978	Coal	Baseload	70.5	391	2,416,351	1,915	7.34	1.67
4	1982	Coal	Baseload	71.1	477	2,971,013	1,940	6.30	1.42

The Mill Creek Generating Station, located in Jefferson County, is 42 years old and consists of four coal-fired electricity generating units. The units came online in 1972, 1974, 1978, and 1982, respectively. The plant has a total nameplate capacity of 1,472 MW and is the largest of Louisville Gas & Electric's plants. In 2013, the plant generated 9.2 GWh of electricity and had a plant-wide capacity factor of 71 percent, making it the third-largest electricity generator in the state that year. More than 80 percent of Mill Creek's coal came from western Kentucky in 2013 from Webster, Ohio, Muhlenberg, Union, and Hopkins counties.

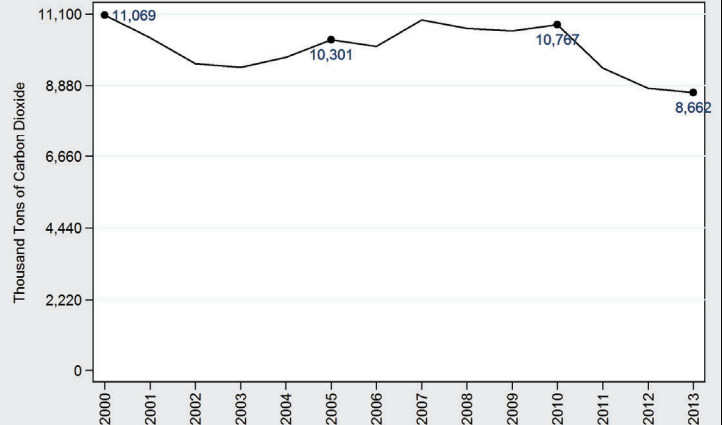
*2013

Mill Creek Generating Station

Mill Creek Coal Consumption by Origin, 1990-2013



Mill Creek CO₂ Emissions from Electricity Generation, 2000-2013

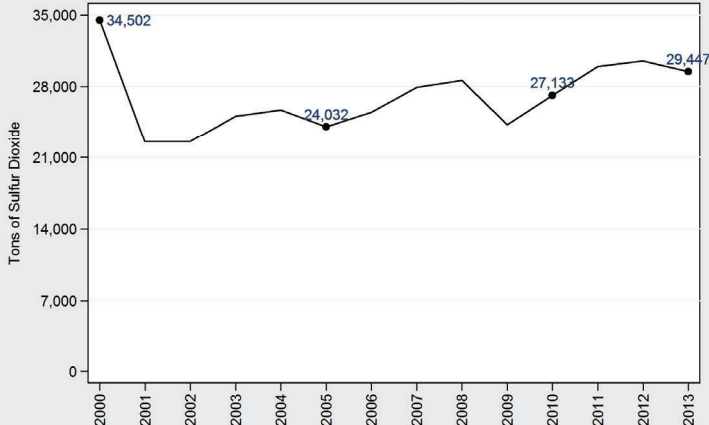


State	2013 Tons	Percentage
Total	3,880,817	100%
Western Kentucky	3,225,169	83.1%
Indiana	366,924	9.5%
Illinois	288,724	7.4%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	8,661,507	-21.8%
Rate (lbs./MWh)	1,884	-16.4%

The Mill Creek Generating Station emitted 8.7 tons of CO₂ in 2013, a decrease of 22 percent since 2000. The rate of CO₂ emissions decreased by 16 percent during that period.

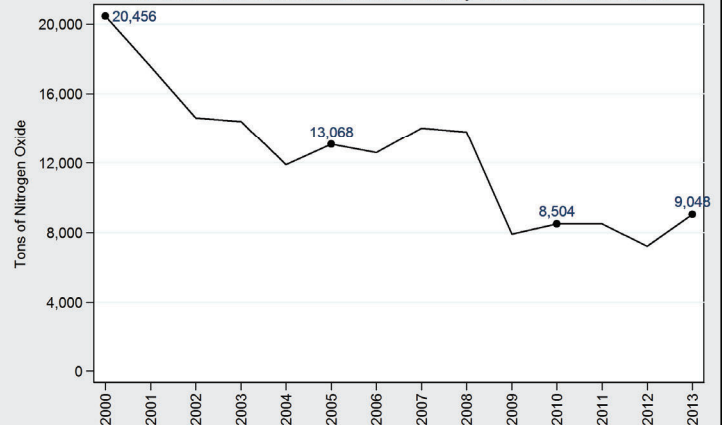
Mill Creek SO₂ Emissions from Electricity Generation, 2000-2013



Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	29,447	-14.7%
Rate (lbs./MWh)	6.40	-8.8%

The Mill Creek Generating Station emitted more SO₂ than any other power plant in Kentucky, at 29 thousand tons of SO₂ in 2013, a decrease of 15 percent since 2000. The rate of SO₂ emissions reduced by 9 percent during that period.

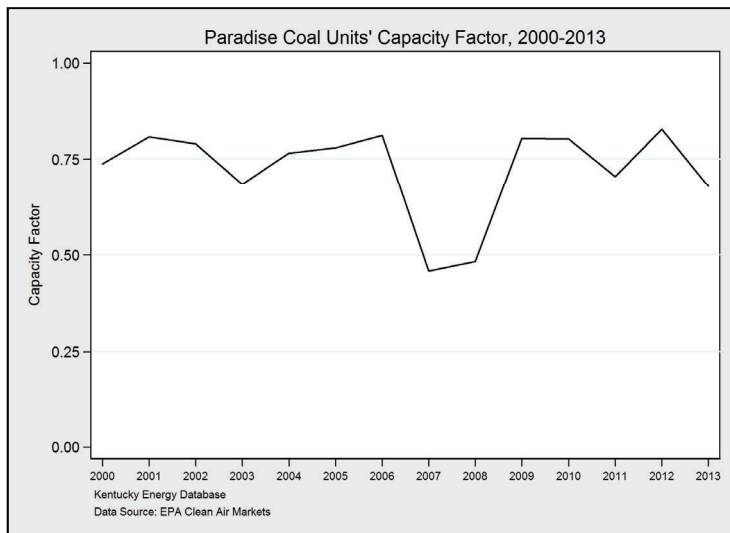
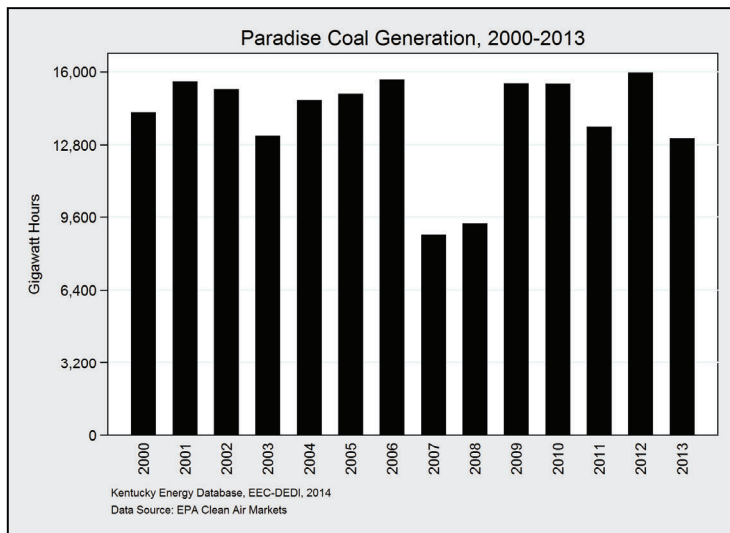
Mill Creek NO_x Emissions from Electricity Generation, 2000-2013



Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	9,048	-55.8%
Rate (lbs./MWh)	1.97	-52.8%

The Mill Creek Generating Station emitted 9,048 tons of NO_x in 2013, a reduction of 56 percent since 2000. The rate of NO_x emissions decreased by 52 percent during that period.

Paradise Fossil Plant



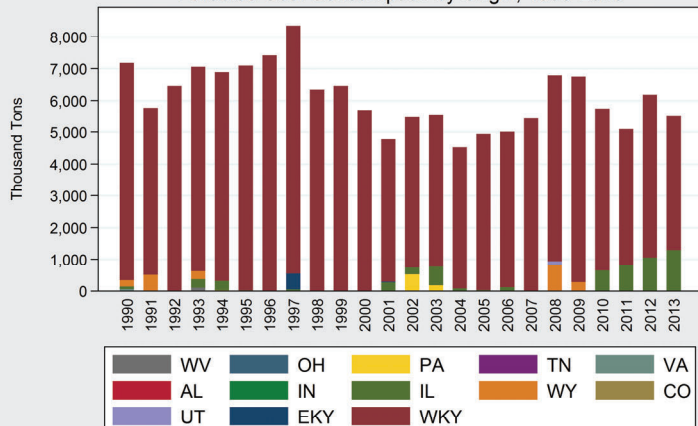
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1963	Coal	Baseload	81.4	628	4,476,732	2,043	4.30	1.00
2	1963	Coal	Baseload	86.5	602	4,563,577	2,076	4.03	1.04
3	1970	Coal	Baseload	47.6	971	4,047,827	1,940	1.33	1.54

The Paradise Fossil Plant, located in Muhlenberg County, is 51 years old and consists of three coal-fired electricity generating units. The units came online in 1963, 1963, and 1970, respectively. The plant has a total nameplate capacity of 2,201 MW. In 2013, the plant generated 13.1 GWh of electricity and had a plant-wide capacity factor of 68 percent, which is the second-most of any plant in Kentucky that year. Tennessee Valley Authority has announced that units 1 and 2 at Paradise will be retired in 2016 and that a natural gas plant will be built. Paradise predominantly burned western Kentucky coal in 2013 from Ohio, Hopkins, Muhlenberg, and Union counties, with Illinois supplying the remaining 23 percent.

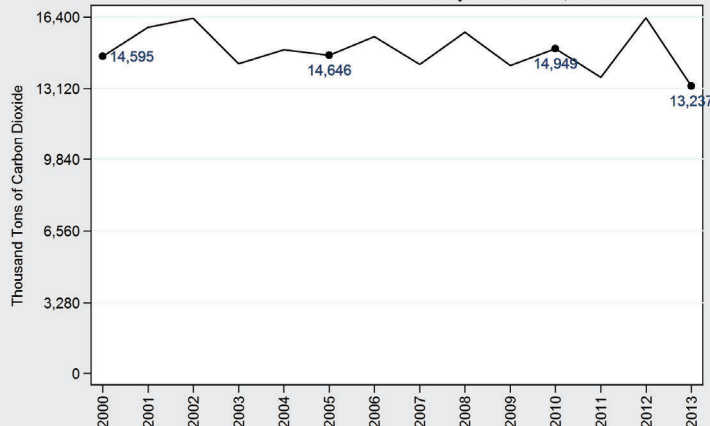
*2013

Paradise Fossil Plant

Paradise Coal Consumption by Origin, 1990-2013



Paradise CO2 Emissions from Electricity Generation, 2000-2013

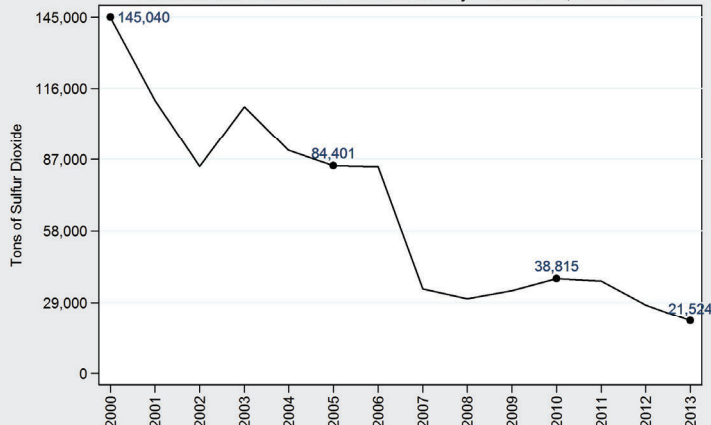


State	2013 Tons	Percentage
Total	5,497,010	100%
Western Kentucky	4,205,257	76.5%
Illinois	1,291,753	23.5%

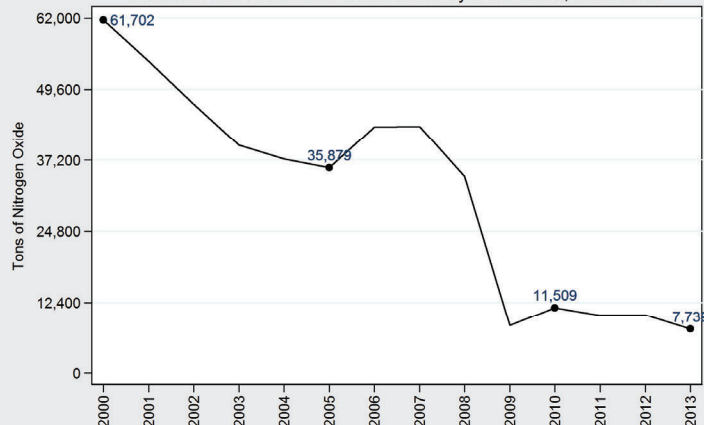
Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	13,236,615	-9.3%
Rate (lbs./MWh)	2,023	-1.4%

The Paradise Fossil Plant emitted 13 million tons of CO₂ in 2013, a decrease of 9 percent since 2000. The rate of CO₂ emissions decreased by 1.4 percent during that period.

Paradise SO2 Emissions from Electricity Generation, 2000-2013



Paradise NOX Emissions from Electricity Generation, 2000-2013



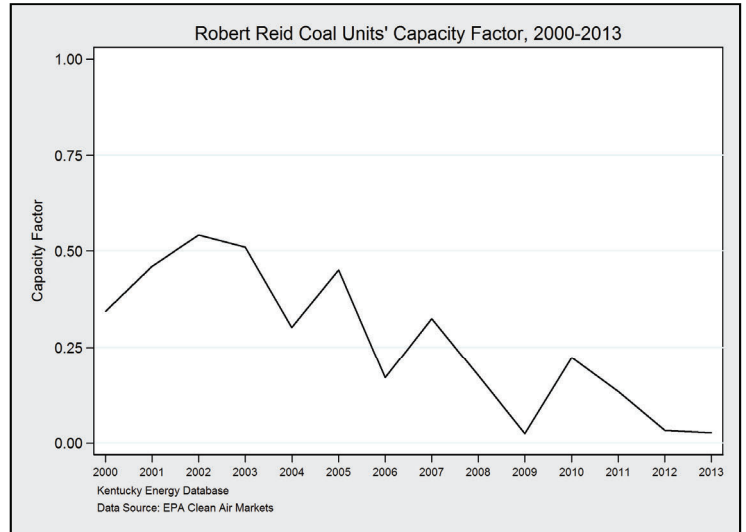
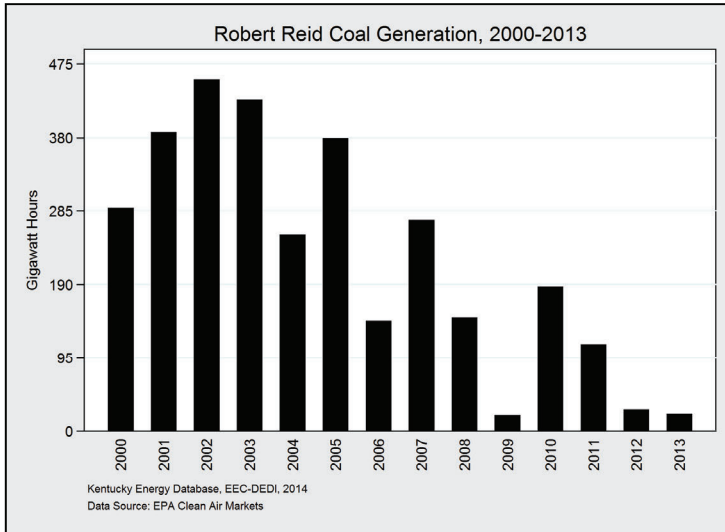
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	21,524	-85.2%
Rate (lbs./MWh)	3.29	-83.9%

The Paradise Fossil Plant emitted 22 thousand tons of SO₂ in 2013, a decrease of 85 percent since 2000. The rate of SO₂ emissions reduced by 84 percent during that period.

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	7,739	-87.5%
Rate (lbs./MWh)	1.18	-86.4%

The Paradise Fossil Plant emitted 7,739 tons of NO_x in 2013, a reduction of 88 percent since 2000. The rate of NO_x emissions decreased by 86 percent during that period.

Robert Reid Power Plant

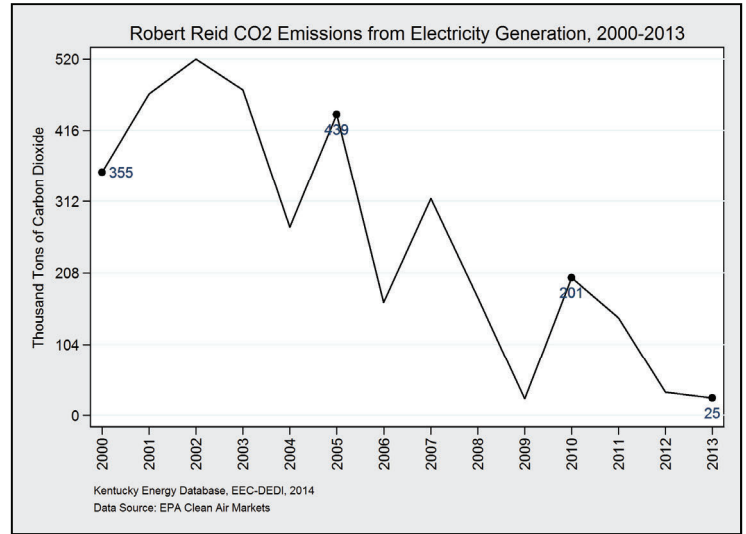
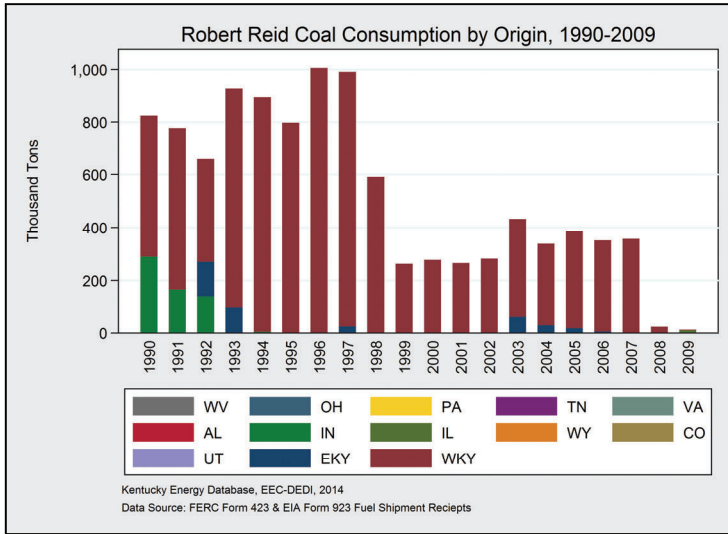


Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1966	Coal	Baseload	2.6	96	22,207	2,279	53.07	5.47

The Robert Reid Power Plant, located in Webster County, is 48 years old and consists of one coal-fired electricity generating unit. The unit came online in 1966, has a nameplate capacity of 96 MW, and is the original generating unit for Big Rivers Electricity Corporation. In 2013, the plant generated 22,207 MWh of electricity, down from around 455,000 MWh in 2005. This decline in generation is consistent with Robert Reid's announced retirement in 2017. Robert Reid's plant-wide capacity in 2013 was only 3 percent.

*2013

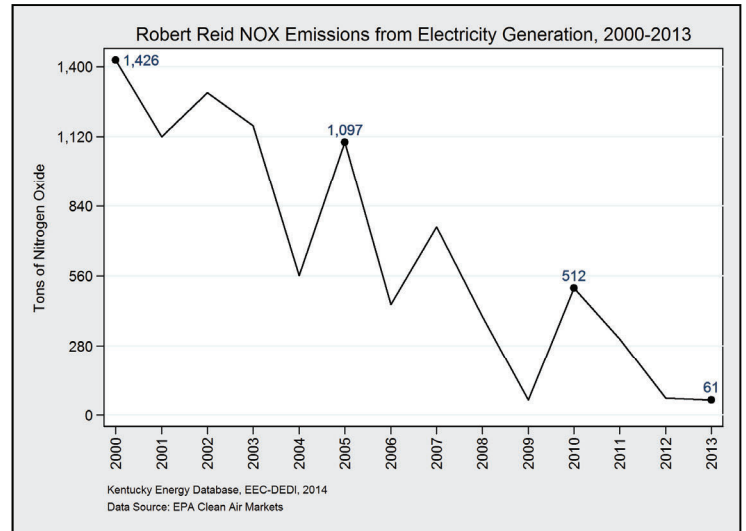
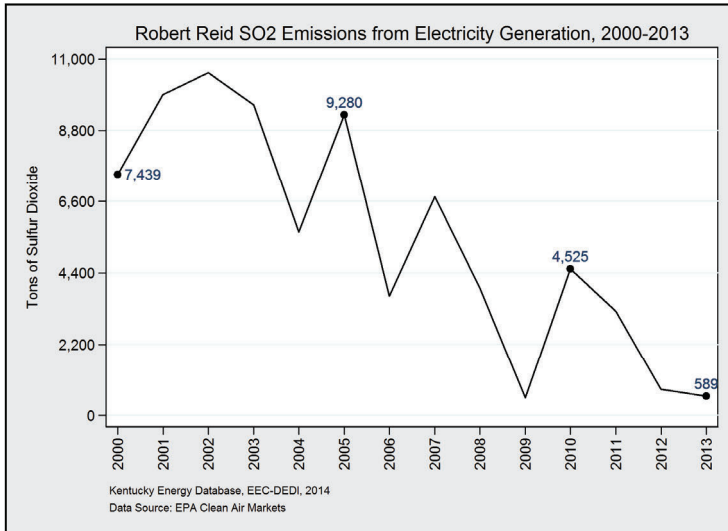
Robert Reid Power Plant



State	2009 Tons	Percentage
Total	12,643	100.00%
Illinois	9,664	76.4%
Western Kentucky	2,979	23.6%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	25,308	-92.9%
Rate (lbs./MWh)	2,279	-7.4%

The Robert Reid Power Plant emitted 25 thousand tons of CO₂ in 2013, a decrease of 93 percent since 2000. The rate of CO₂ emissions decreased by 7 percent during that period.



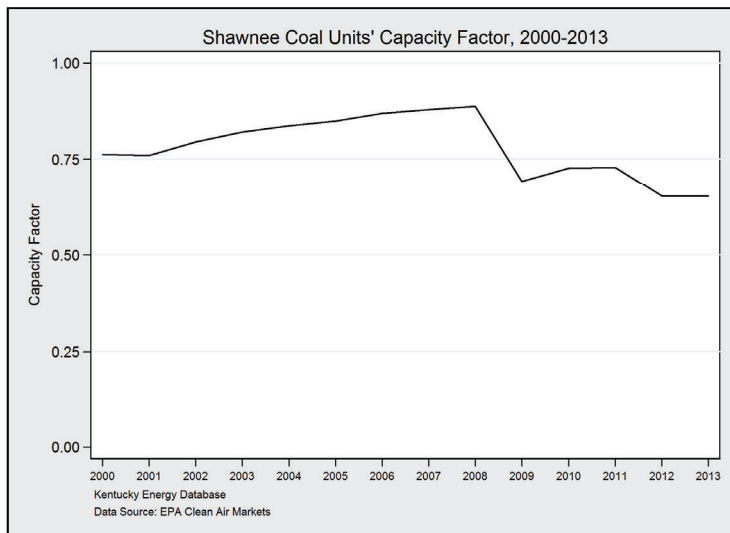
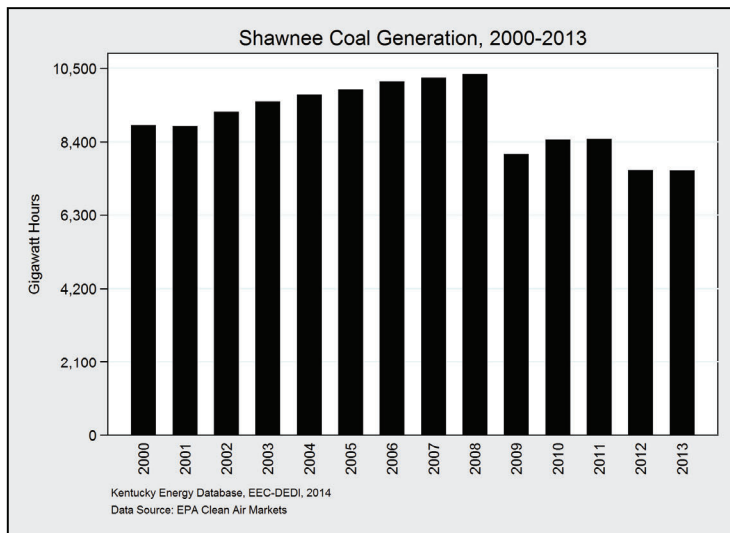
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	589	-92.1%
Rate (lbs./MWh)	53.07	+3.1%

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	61	-95.7%
Rate (lbs./MWh)	5.47	-44.6%

The Robert Reid Power Plant emitted 589 tons of SO₂ in 2013, a decrease of 92 percent since 2000. The rate of SO₂ emissions reduced by 3 percent during that period. Robert Reid has the highest rate of SO₂ emissions in the Commonwealth, but the lowest mass emissions, due to its impending closure.

The Robert Reid Power Plant emitted 61 tons of NO_x in 2013, a reduction of 96 percent since 2000. The rate of NO_x emissions decreased by 45 percent during that period, though Robert Reid has the highest rate of NO_x emissions in Kentucky.

Shawnee Fossil Plant

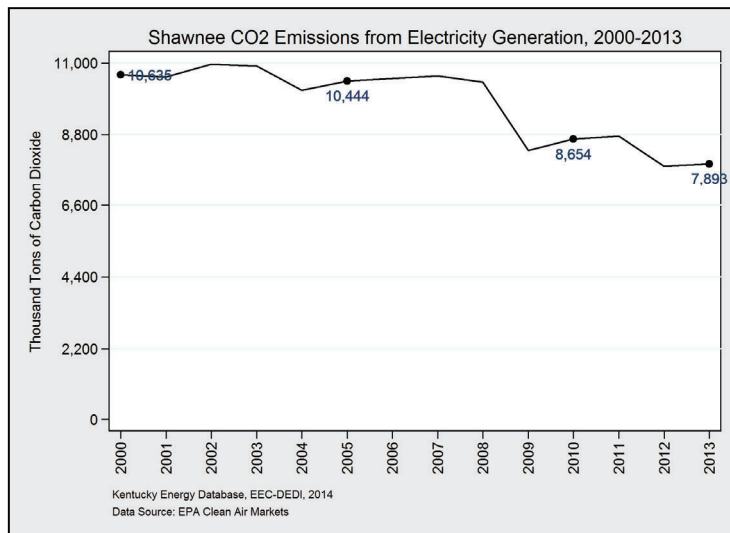
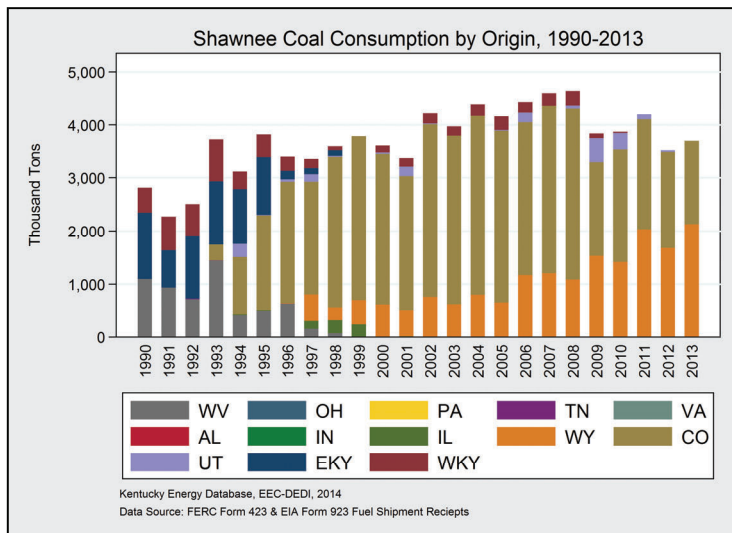


Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1953	Coal	Baseload	74.8	134	878,362	2,036	7.05	3.27
2	1956	Coal	Baseload	65.8	134	772,147	2,035	7.07	3.31
3	1953	Coal	Baseload	73.8	134	865,989	2,037	7.06	3.26
4	1953	Coal	Baseload	76.0	134	892,634	2,035	7.08	3.29
5	1954	Coal	Baseload	78.5	134	921,201	2,036	7.05	3.28
6	1954	Coal	Baseload	70.3	134	825,263	2,137	7.27	3.06
7	1954	Coal	Baseload	66.5	134	780,904	2,136	7.39	3.06
8	1954	Coal	Baseload	74.5	134	874,104	2,135	7.30	3.05
9	1955	Coal	Baseload	66.7	134	783,400	2,134	7.27	3.05
10	1955	Coal	Baseload	0.0	124	0	0	0	0

The Shawnee Fossil Plant, located in McCracken County, is 61 years old and consists of 10 coal-fired electricity generating units. The units came online in 1953, 1954, 1955, and 1956. The plant has a total nameplate capacity of 1,330 MW. In 2013, the plant generated 7.59 GWh of electricity and had a plant-wide capacity factor of 65 percent. Tennessee Valley Authority idled unit 10 in 2010. Shawnee burned a mix of coal from Wyoming (58 percent) and Colorado (42 percent) in 2013, as it has for over a decade.

*2013

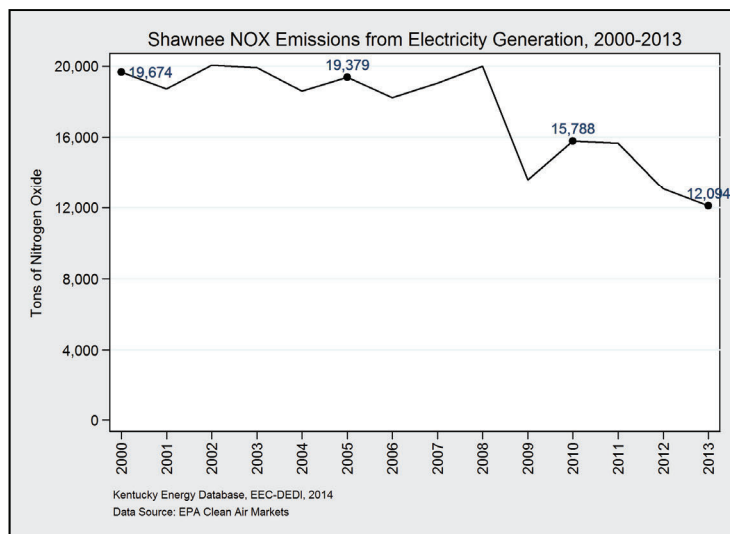
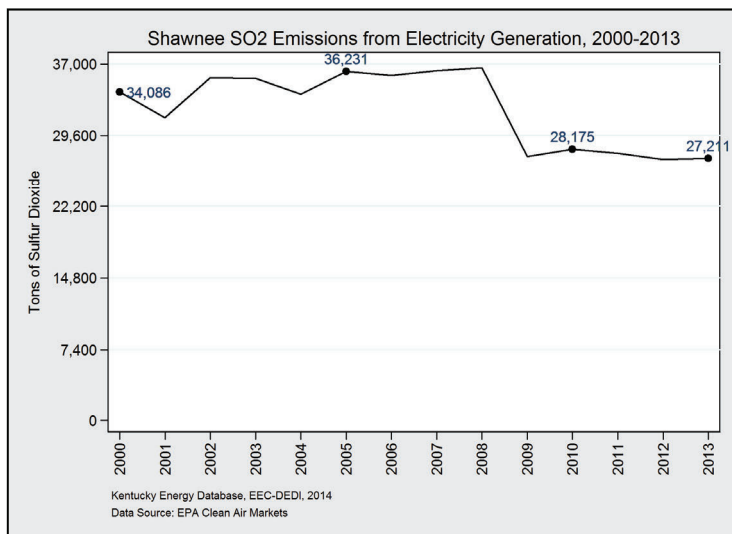
Shawnee Fossil Plant



State	2013 Tons	Percentage
Total	3,699,944	100%
West Virginia	2,129,691	57.6%
Colorado	1,570,253	42.4%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	7,892,547	-26.8%
Rate (lbs./MWh)	2,079	-13.2%

The Shawnee Fossil Plant emitted 7.9 million tons of CO₂ in 2013, a decrease of 27 percent since 2000. The rate of CO₂ emissions decreased by 13 percent during that period.



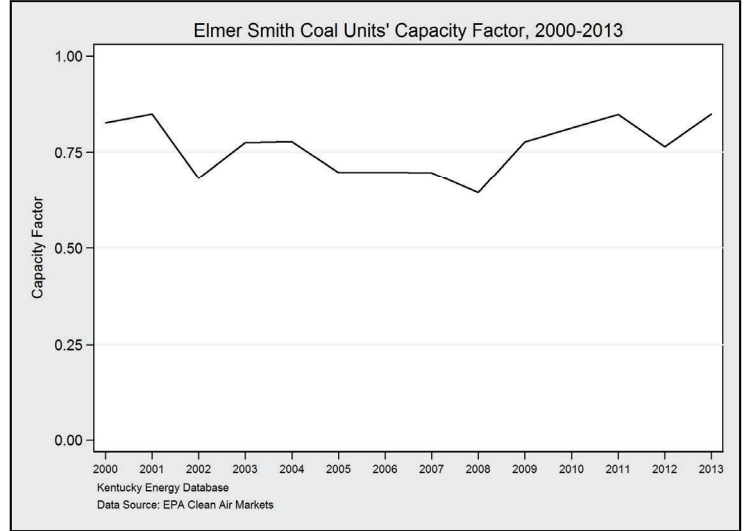
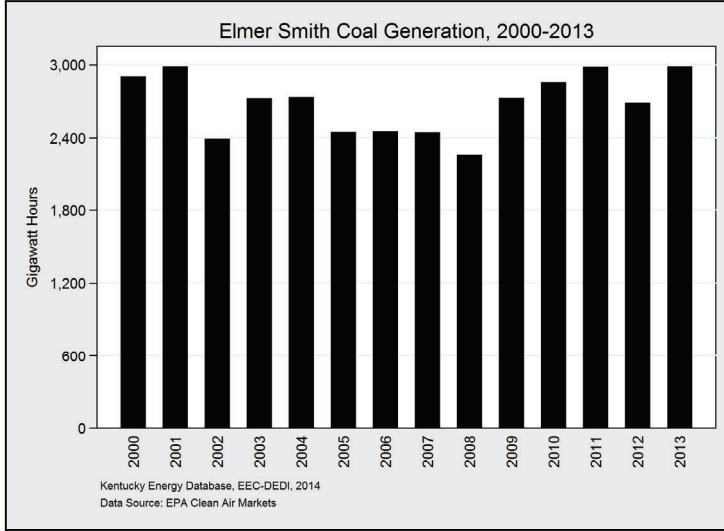
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	27,211	-20.2%
Rate (lbs./MWh)	7.17	-6.6%

The Shawnee Fossil Plant emitted 27 thousand tons of SO₂ in 2013, a decrease of 20 percent since 2000. Shawnee had the second highest SO₂ emissions in the Commonwealth in 2013. The rate of SO₂ emissions reduced by 7 percent during since 2000.

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	12,094	-38.5%
Rate (lbs./MWh)	3.18	-28.1%

The Shawnee Fossil Plant emitted 12,094 tons of NO_x in 2013, a reduction of 39 percent since 2000, but the single largest emitter of NO_x in 2013. The rate of NO_x emissions decreased by 28 percent since 2000.

Elmer Smith Station



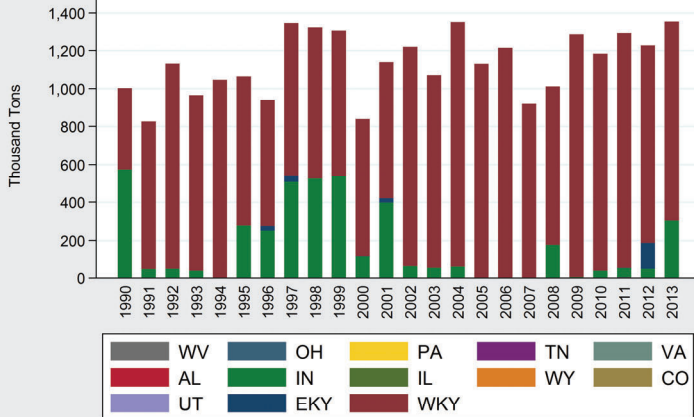
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1964	Coal	Baseload	84.0	139	1,023,037	2,152	5.18	8.04
2	1974	Coal	Baseload	85.2	263	1,963,841	2,126	5.51	3.07

Elmer Smith Station, located in Henderson County, is 50 years old and consists of two coal-fired electricity generating units. The units came online in 1964 and 1974, respectively. The plant has a total nameplate capacity of 401 MW. In 2013, the plant generated 2.98 GWh of electricity and had a plant-wide capacity factor of 85 percent. Just under 80 percent of the coal used at Elmer Smith in 2013 came from western Kentucky from Davies, Henderson, and Ohio counties.

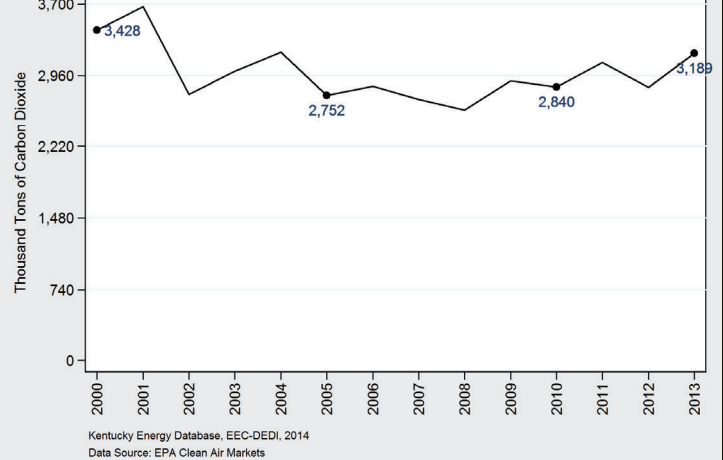
*2013

Elmer Smith Station

Elmer Smith Coal Consumption by Origin, 1990-2013



Elmer Smith CO₂ Emissions from Electricity Generation, 2000-2013

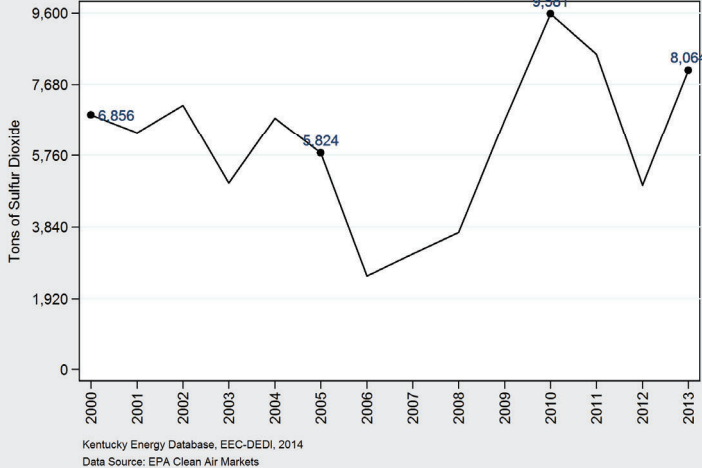


State	2013 Tons	Percentage
Total	1,355,474	100%
Western Kentucky	1,051,468	77.6%
Indiana	302,009	22.3%
Tennessee	1,896	0.1%

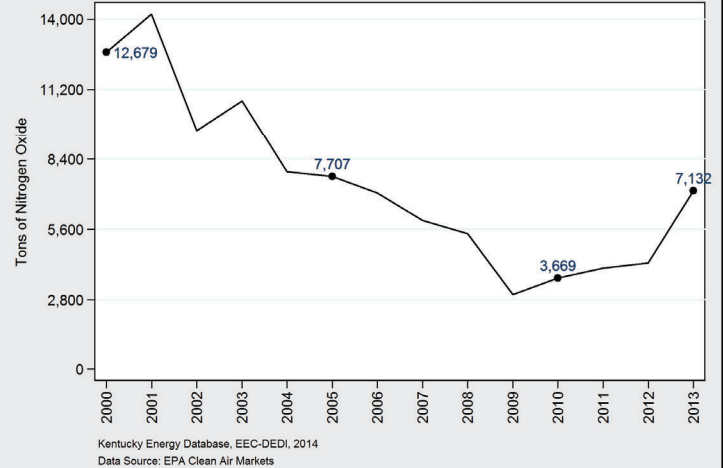
Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	3,188,554	-7.0%
Rate (lbs./MWh)	2,135	-9.5%

Elmer Smith Station emitted 3.1 million tons of CO₂ in 2013, a decrease of 7 percent since 2000. The rate of CO₂ emissions decreased by 9.5 percent during that period.

Elmer Smith SO₂ Emissions from Electricity Generation, 2000-2013



Elmer Smith NO_x Emissions from Electricity Generation, 2000-2013



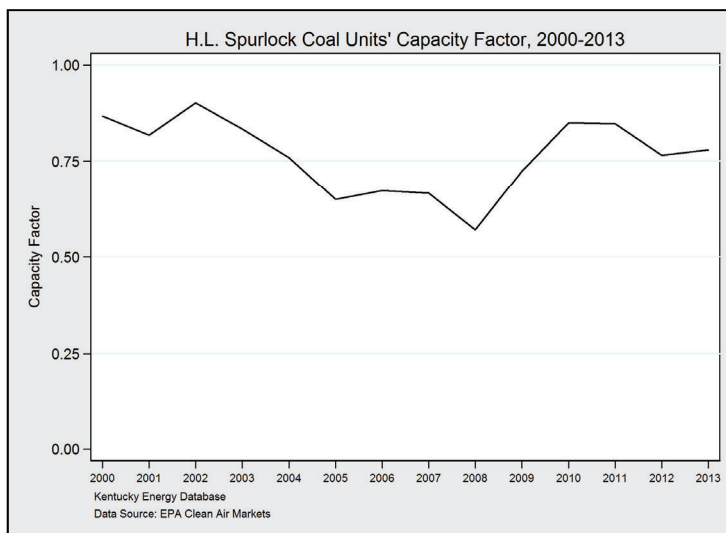
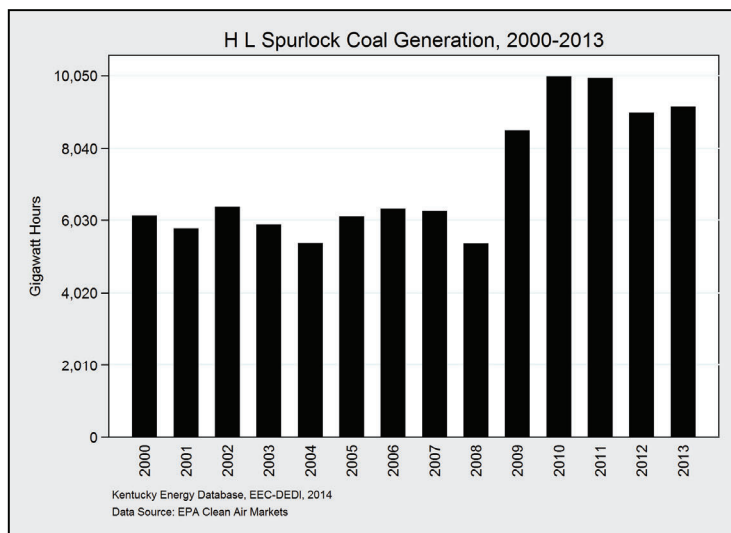
Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	8,064	+17.6%
Rate (lbs./MWh)	5.40	+14.4%

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	7,132	-43.8%
Rate (lbs./MWh)	4.78	-45.3%

Elmer Smith Station emitted 8,064 tons of SO₂ in 2013, an increase of 18 percent since 2000. The rate of SO₂ emissions reduced by 15 percent during that period and had the second-lowest rate of SO₂ emissions in the Commonwealth in 2013.

Elmer Smith Station emitted 7,132 tons of NO_x in 2013, a reduction of 44 percent since 2000. The rate of NO_x emissions decreased by 45 percent during that period, but as of 2013 had the second highest rate of NO_x emissions in the state.

H.L. Spurlock Power Station



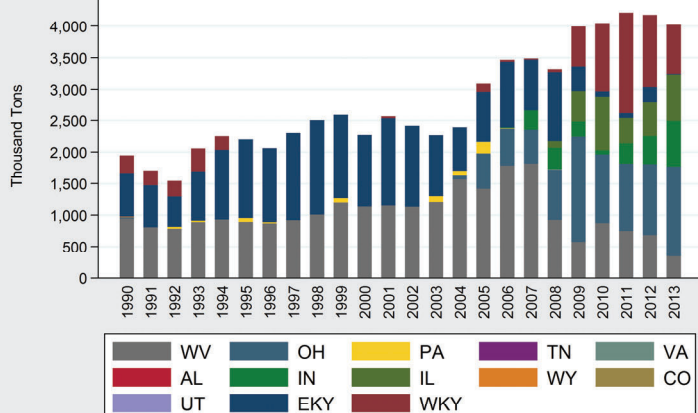
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1977	Coal	Baseload	64.5	300	1,695,428	1,750	0.89	0.72
2	1981	Coal	Baseload	82.0	510	3,661,754	2,037	0.95	0.86
3	2005	Coal	Baseload	77.2	268	1,812,829	1,814	1.23	0.56
4	2005	Coal	Baseload	86.2	268	2,022,761	1,703	0.85	0.51

The H.L. Spurlock Power Station, located in Mason County, is 37 years old and consists of four coal-fired electricity generating units. The units came online in 1977, 1981, 2005, and 2009, respectively. The plant has a total nameplate capacity of 1,346 MW. In 2013, the plant generated 9.1 GWh of electricity and had a plant-wide capacity factor of 78 percent, fourth-most of all generating plants in Kentucky. To lower sulfur dioxide emissions, scrubbers were installed on units 1 and 2 in 2008 and 2009. Spurlock used a mix of coal from western Kentucky, Indiana, Illinois, Ohio, and West Virginia in 2013. From the 1990s through the mid-2000s, Spurlock used a mix of mostly eastern Kentucky and West Virginia coal.

*2013

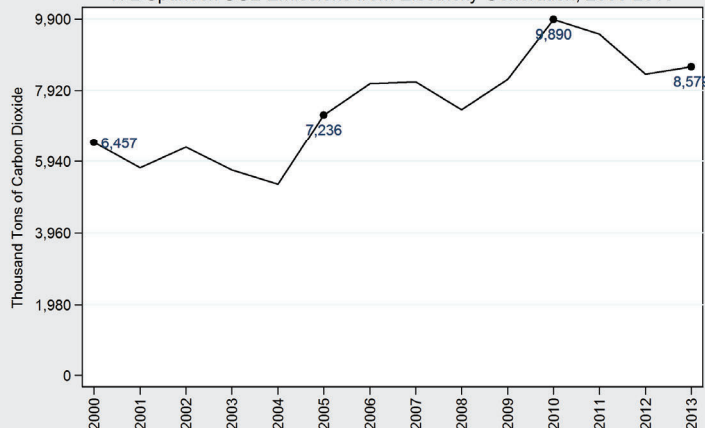
H.L. Spurlock Power Station

H L Spurlock Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

H L Spurlock CO2 Emissions from Electricity Generation, 2000-2013



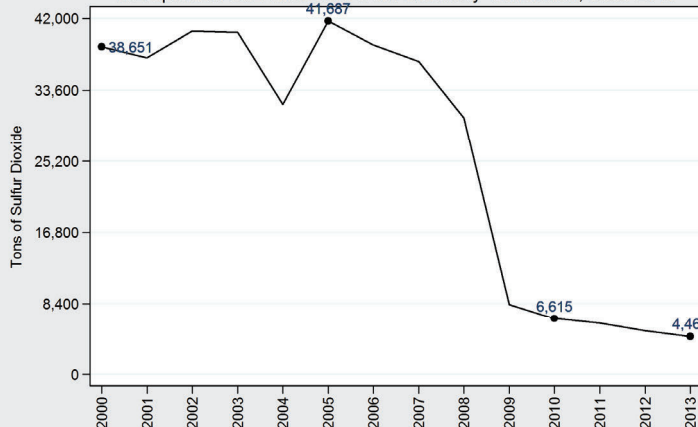
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013 Tons	Percentage
Total	4,019,347	100%
Ohio	1,424,936	35.5%
Western Kentucky	775,799	19.3%
Illinois	740,128	18.4%
Indiana	722,866	18.0%
West Virginia	345,684	8.6%
Eastern Kentucky	9,934	0.2%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	8,579,203	+32.9%
Rate (lbs./MWh)	1,867	-11.0%

The H.L. Spurlock Power Station emitted 8.6 million tons of CO₂ in 2013, an increase of 33 percent since 2000. The rate of CO₂ emissions decreased by 11 percent during that period.

H L Spurlock SO2 Emissions from Electricity Generation, 2000-2013

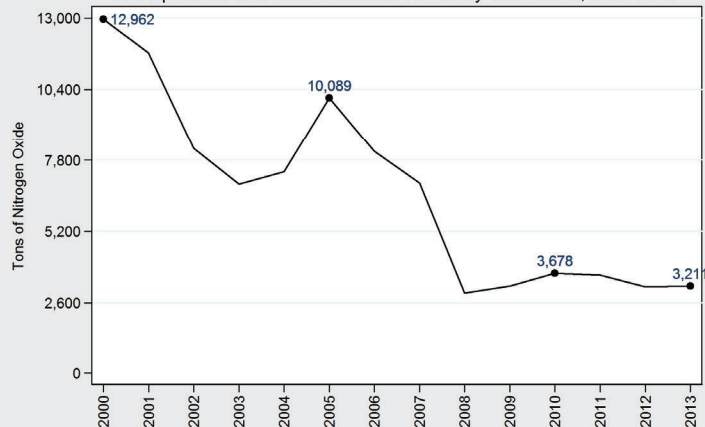


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	4,469	-88.4%
Rate (lbs./MWh)	0.97	-92.3%

The H.L. Spurlock Power Station emitted 4,469 tons of SO₂ in 2013, a decrease of 88 percent since 2000. The rate of SO₂ emissions reduced by 92 percent during that period and now has the second-lowest rate of SO₂ emissions in the Commonwealth.

H L Spurlock NOX Emissions from Electricity Generation, 2000-2013

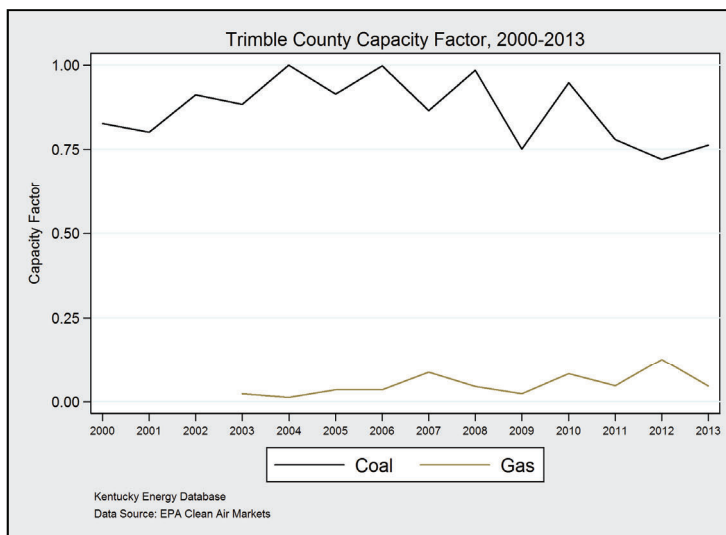
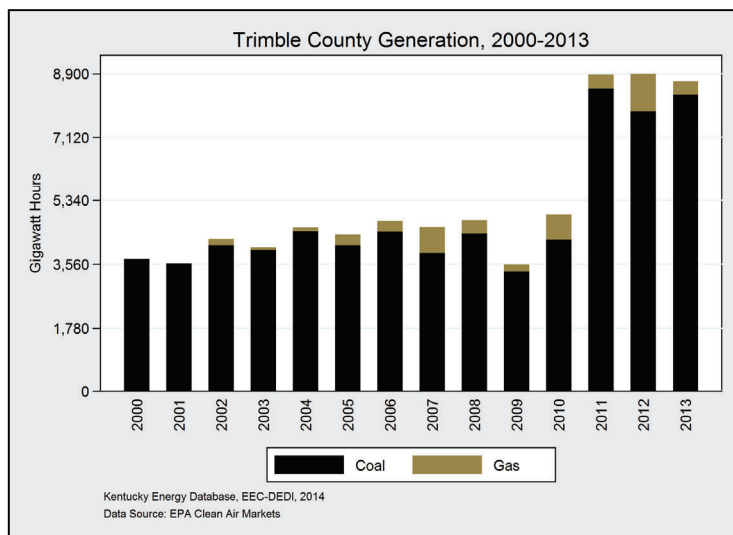


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	3,211	-75.2%
Rate (lbs./MWh)	0.70	-83.4%

The H.L. Spurlock Power Station emitted 3,211 tons of NO_x in 2013, a reduction of 75 percent since 2000. The rate of NO_x emissions decreased by 83 percent during that period. In 2013, Spurlock had the lowest rate of NO_x emissions in the Kentucky.

Trimble County Generating Station



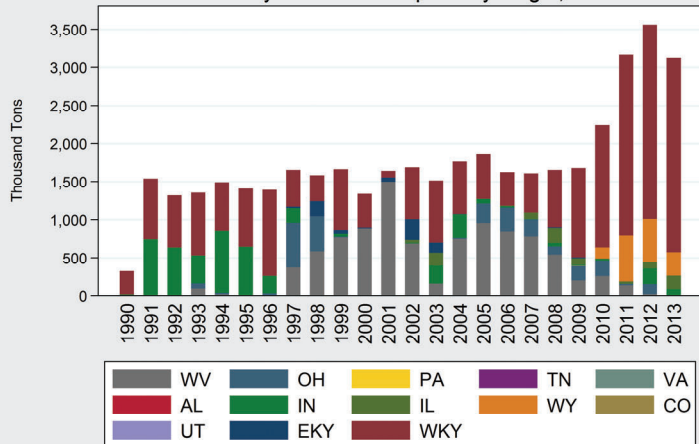
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1990	Coal	Baseload	84.8	511	3,794,362	1,898	1.23	1.25
2	2010	Coal	Baseload	70.4	732	4,515,549	1,810	0.52	0.41
5	2002	Natural Gas	Peaking	5.0	157	69,235	1,460	0.01	0.34
6	2002	Natural Gas	Peaking	6.7	157	92,408	1,452	0.01	0.37
7	2004	Natural Gas	Peaking	5.5	157	76,056	1,427	0.01	0.35
8	2004	Natural Gas	Peaking	2.1	157	28,637	1,410	0.01	0.32
9	2004	Natural Gas	Peaking	6.4	157	87,397	1,457	0.01	0.34
10	2004	Natural Gas	Peaking	2.0	157	27,620	1,407	0.01	0.35

The Trimble County Generating Station consists of two coal-fired electricity generating units, as well as six natural gas combustion turbines, which are used to meet peak demand. The plant is 24 years old, making it the youngest coal-fired electricity generation plant in Kentucky, and the coal units came online in 1990 and 2010, respectively. The plant's coal units have a total nameplate capacity of 1,243 MW. In 2013, the plant generated 8.69 GWh of electricity and had a plant-wide capacity factor of 76 percent—fifth-most of all electricity generators in Kentucky that year. Trimble County used predominantly western Kentucky coal (82 percent) in 2013 from Union, Davies, Muhlenberg, and Ohio counties, with the remaining 18 percent coming from Wyoming, Indiana, and Illinois.

*2013

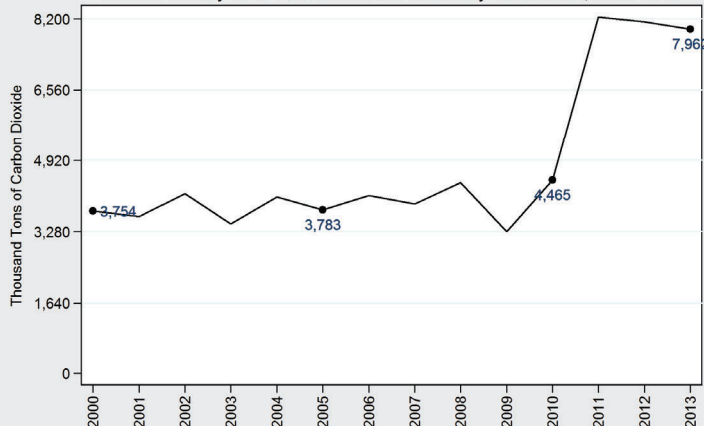
Trimble County Generating Station

Trimble County Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014

Trimble County CO₂ Emissions from Electricity Generation, 2000-2013



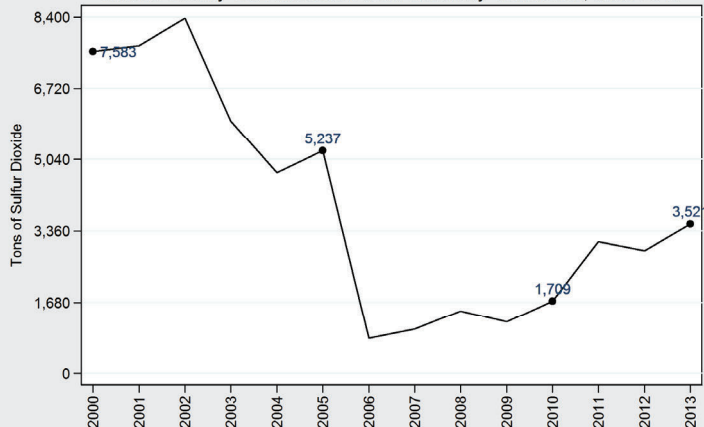
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013	Percentage
Total	3,124,289	100%
Western Kentucky	2,552,376	81.7%
Wyoming	308,409	9.9%
Illinois	177,003	5.7%
Indiana	84,841	2.7%
Ohio	1,660	0.1%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	7,962,266	+112.1%
Rate (lbs./MWh)	1,832	-9.6%

The Trimble County Generating Station emitted almost eight million tons of CO₂ in 2013, an increase of 112 percent since 2000. Conversely, the rate of CO₂ emissions decreased by 10 percent during that period as Unit 2 came online in 2010.

Trimble County SO₂ Emissions from Electricity Generation, 2000-2013

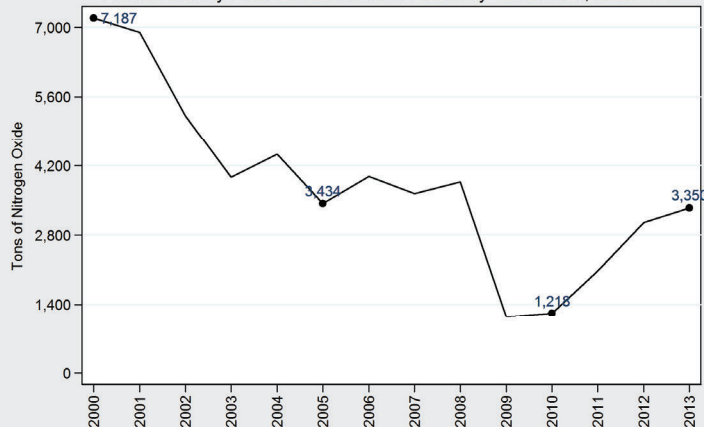


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	3,521	-53.6%
Rate (lbs./MWh)	0.81	-80.2%

The Trimble County Generating Station emitted 3,521 tons of SO₂ in 2013, a decrease of 54 percent since 2000. The rate of SO₂ emissions reduced by 80 percent during that period and in 2013 had the lowest rate of SO₂ emissions in the state.

Trimble County NO_x Emissions from Electricity Generation, 2000-2013

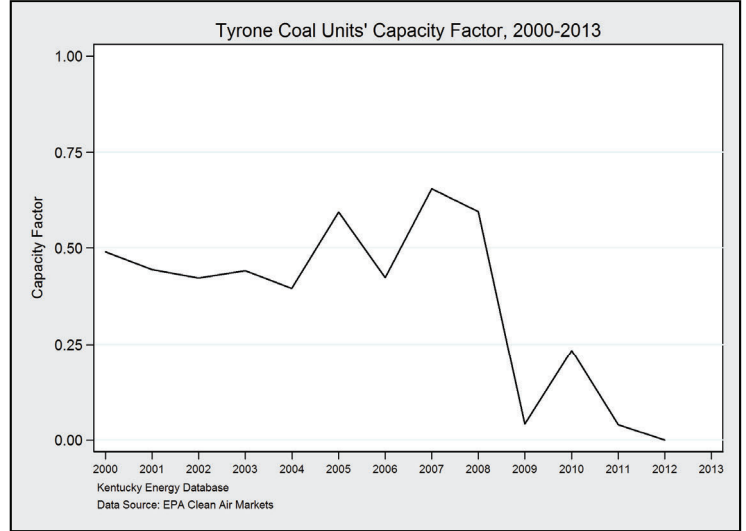
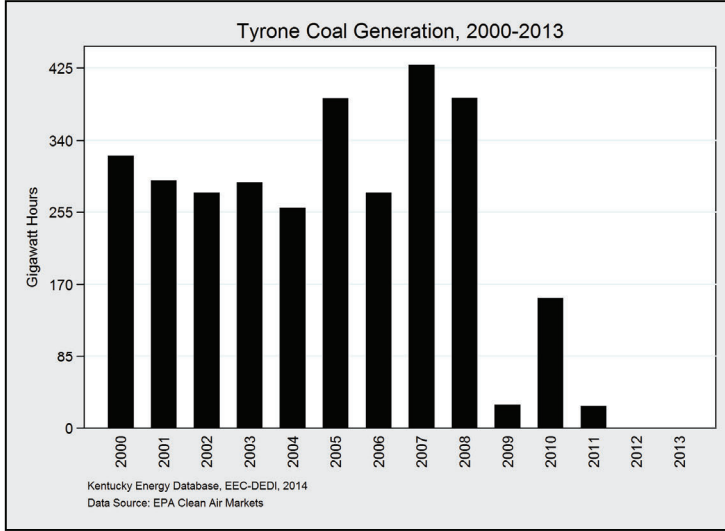


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	3,350	-53.4%
Rate (lbs./MWh)	0.77	-80.1%

The Trimble County Generating Station emitted 3,350 tons of NO_x in 2013, a reduction of 53 percent since 2000. The rate of NO_x emissions decreased by 80 percent during that period. In 2013, Trimble County had the second-lowest rate of NO_x emissions in the Commonwealth.

Tyrone Generating Station



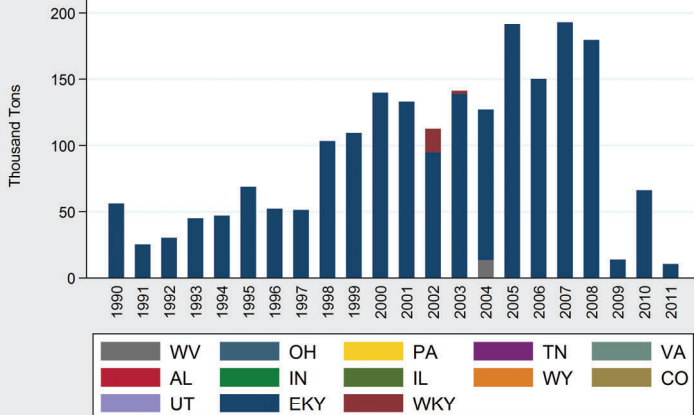
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1955	Coal	Baseload	0.0	75	0	0	0	0

The Tyrone Generating Station, located in Woodford County, is 67 years old and consists of one coal-fired electricity generating unit. The unit came online in 1955 and has a nameplate capacity of 75 MW. Tyrone has not generated electricity since 2011 and Kentucky Utilities has announced it will close in 2016. Since 1990, Tyrone has used mostly eastern Kentucky coal from Floyd, Pike, Perry, and Breathitt counties.

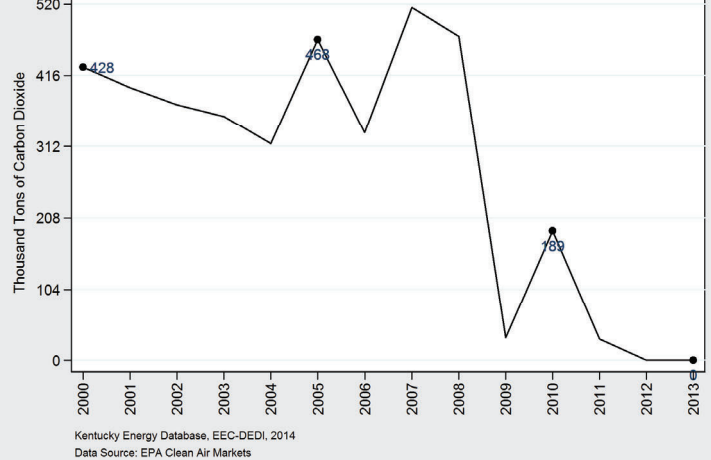
*2013

Tyrone Generating Station

Tyrone Coal Consumption by Origin, 1990-2011



Tyrone CO2 Emissions from Electricity Generation, 2000-2013



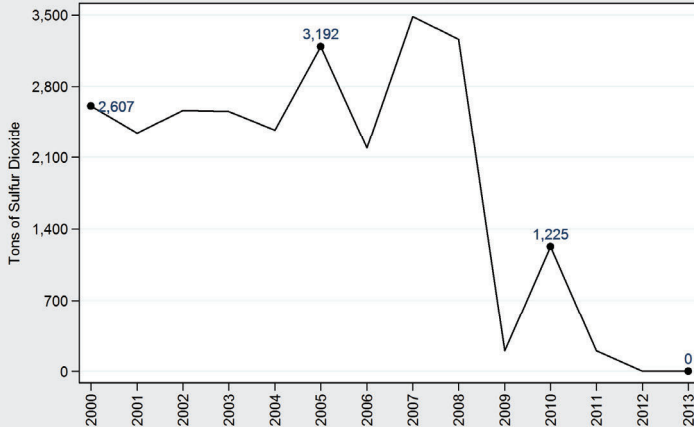
State	2011 Tons	Percentage
Total	10,437	100.00%
Eastern Kentucky	10,437	100.00%

The Tyrone Generating Station historically burned eastern Kentucky coal. Tyrone has not generated power since 2011, and is being retired.

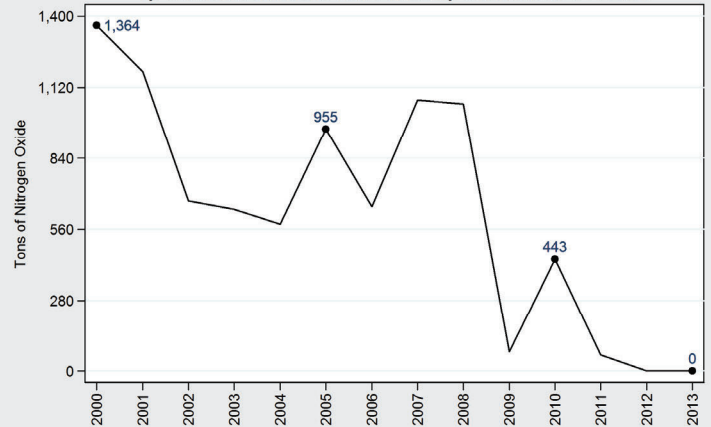
Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	0.00	-100%
Rate (lbs./MWh)	0.00	-100%

The Tyrone Generating Station emitted 0 tons of CO₂ in 2013, as the facility is no-longer generating power.

Tyrone SO2 Emissions from Electricity Generation, 2000-2013



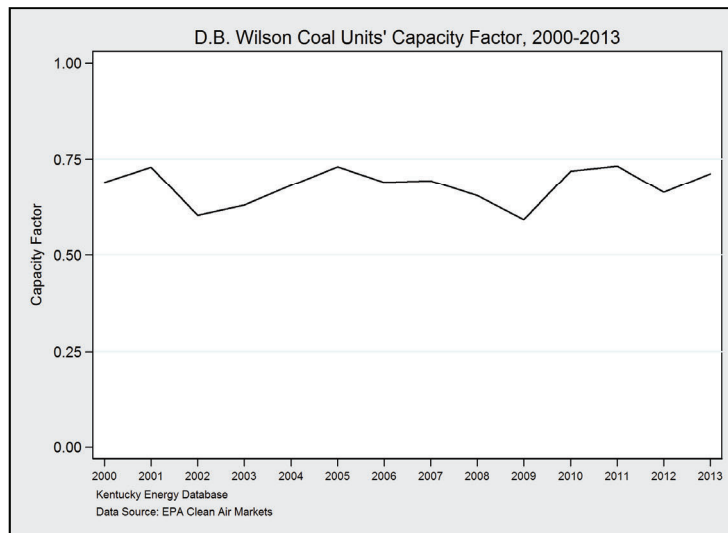
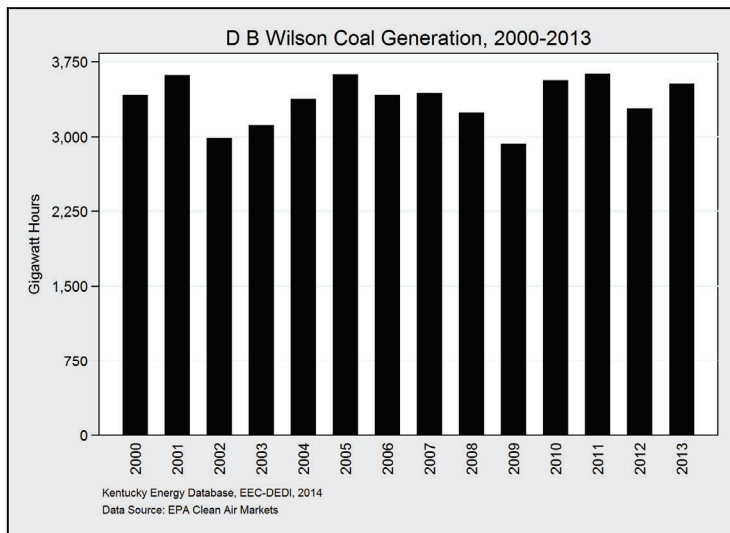
Tyrone NOX Emissions from Electricity Generation, 2000-2013



Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	0.00	-100%
Rate (lbs./MWh)	0	-100%

Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	0.00	-100%
Rate (lbs./MWh)	0	-100%

D.B. Wilson Station



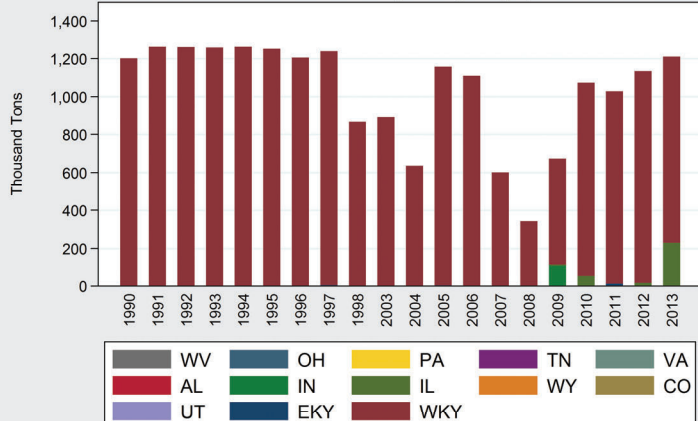
Unit Number	Online Year	Primary Fuel	Function	Capacity Factor* (%)	Capacity (MW)	Gross Load* (MWh)	CO ₂ Rate* (lbs./MWh)	SO ₂ Rate* (lbs./MWh)	NO _x Rate* (lbs./MWh)
1	1984	Coal	Baseload	71.2	566	3,531,507	1,901	4.31	0.59

D.B. Wilson Station, located in Ohio County, is 30 years old and consists of one coal-fired electricity generating unit. The unit came online in 1984 and has a nameplate capacity of 566 MW. In 2013, the plant generated 3.5 GWh of electricity and had a plant-wide capacity factor of 71 percent. Wilson burned predominantly western Kentucky coal in 2013 from Union and Muhlenberg counties.

*2013

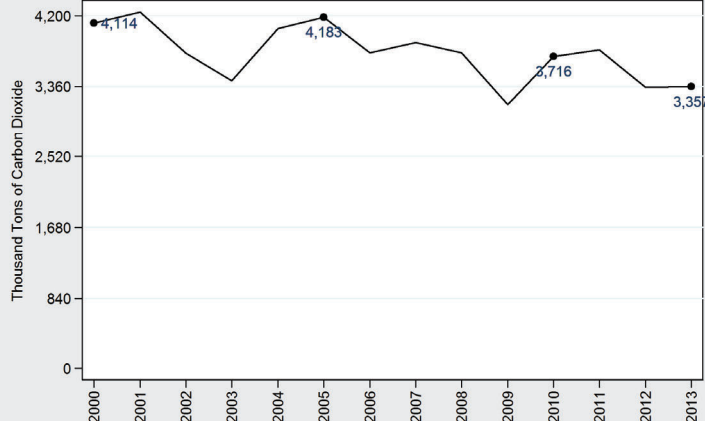
D.B. Wilson Station

D B Wilson Coal Consumption by Origin, 1990-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: FERC Form 423 & EIA Form 923 Fuel Shipment Receipts

D B Wilson CO2 Emissions from Electricity Generation, 2000-2013



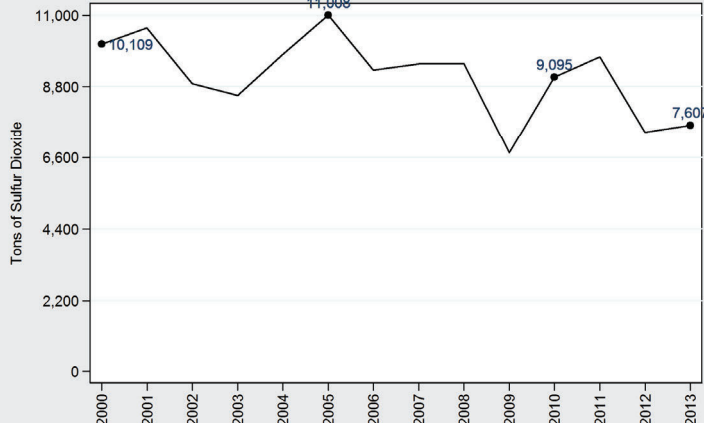
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

State	2013	Percentage
Total	1,209,854	100.00%
Western Kentucky	980,372	81.03%
Illinois	229,482	18.97%

Carbon Dioxide	2013	Since 2000
Emissions (Tonnage)	3,357,326	-18.4%
Rate (lbs./MWh)	1,901	-21.0%

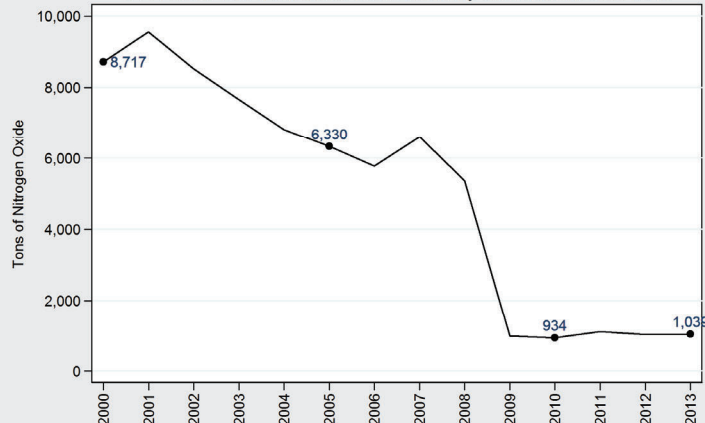
The D.B. Wilson Station emitted 3.4 million tons of CO₂ in 2013, a decrease of 18 percent since 2000. The rate of CO₂ emissions decreased by 21 percent during that period.

D B Wilson SO2 Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

D B Wilson NOx Emissions from Electricity Generation, 2000-2013



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EPA Clean Air Markets

Sulfur Dioxide	2013	Since 2000
Emissions (Tonnage)	7,607	-24.8%
Rate (lbs./MWh)	4.31	-27.2%

The D.B. Wilson Station emitted 7.6 thousand tons of SO₂ in 2013, a decrease of 25 percent since 2000. The rate of SO₂ emissions reduced by 27 percent during that period.

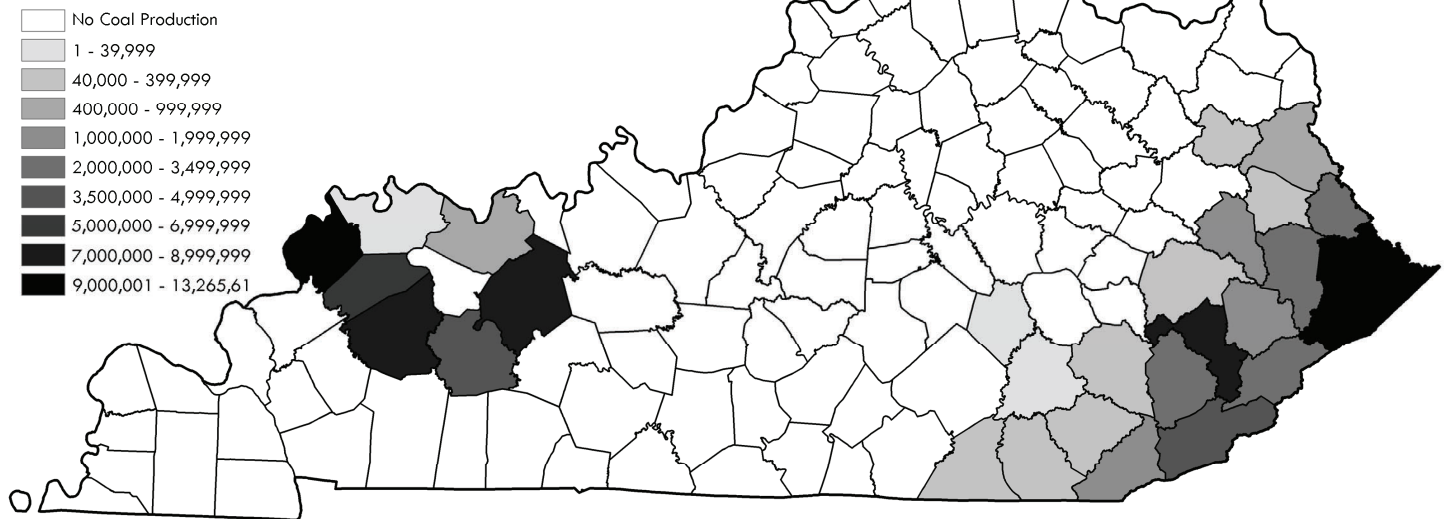
Nitrogen Dioxide	2013	Since 2000
Emissions (Tonnage)	1,039	-88.1%
Rate (lbs./MWh)	0.59	-88.5%

The D.B. Wilson Station emitted one thousand tons of NO_x in 2013, a reduction of 88 percent since 2000. The rate of NO_x emissions decreased by 86 percent during that period.

Kentucky Coal Production

Kentucky Coal Production, 2013

Tons of Coal Mined by County



Kentucky Energy Database, EEC-DEDI, 2014

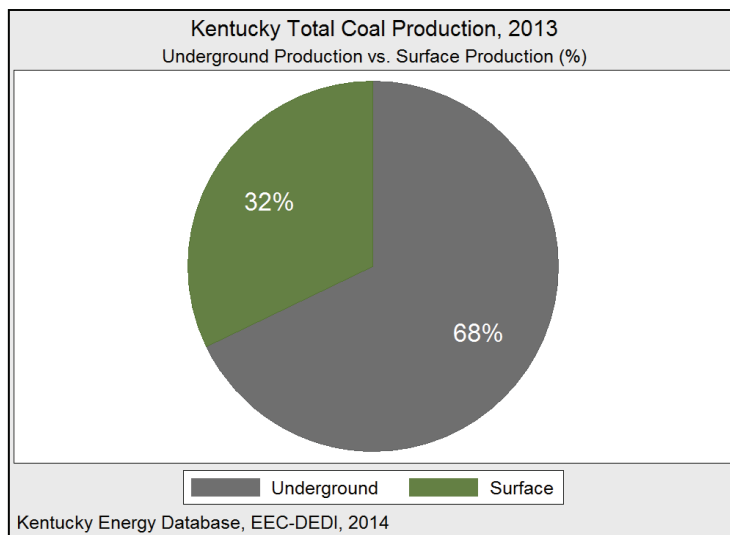
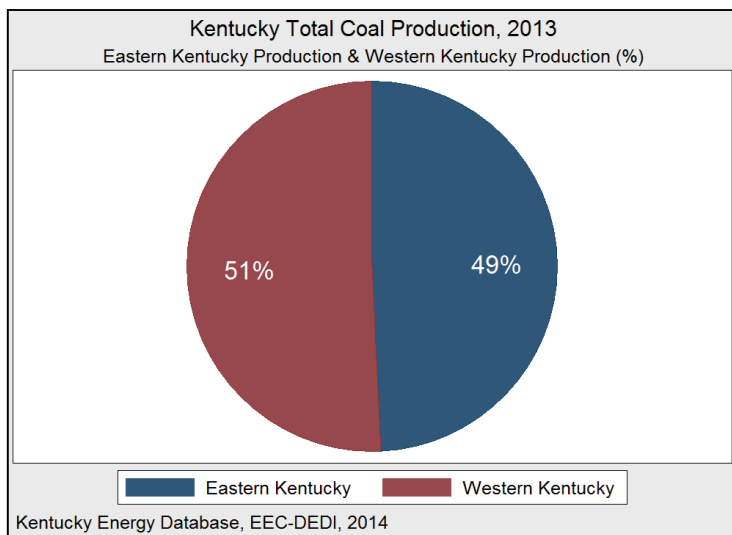
County	Tons	1 Year Change	Percentage
Total	80,551,297	-12.0%	100.0%
Union	13,265,616	-1.6%	16.5%
Pike	10,950,788	-16.9%	13.6%
Hopkins	8,963,894	+0.2%	11.1%
Ohio	8,197,105	+13.4%	10.2%
Perry	7,606,172	-15.1%	9.4%
Webster	5,880,279	+5.9%	7.3%
Harlan	4,566,066	-34.7%	5.7%
Muhlenberg	4,073,837	-16.7%	5.1%
Martin	2,987,669	-16.7%	3.7%
Floyd	2,441,648	-0.3%	3.0%
Letcher	2,174,989	-27.5%	2.7%
Leslie	2,136,704	-30.8%	2.7%
Knott	1,902,183	-27.0%	2.4%
Magoffin	1,551,124	-23.0%	1.9%

County	Tons	1 Year Change	Percentage
Bell	1,156,997	-1.2%	1.4%
Lawrence	643,970	+170.6%	0.8%
Daviess	484,569	+22.6%	0.6%
Knox	380,039	-41.0%	0.5%
Johnson	331,146	+1.1%	0.4%
Whitley	285,761	1.9%	0.4%
Clay	181,527	-38.2%	0.2%
Breathitt	180,251	-37.9%	0.2%
McCreary	111,242	+250.4%	0.1%
Elliott	46,421	+1837.4%	0.1%
Laurel	24,196	+91.6%	<0.1%
Henderson	13,663	-99.1%	<0.1%
Rockcastle	13,441	+172.6%	<0.1%

During 2013, coal production in the Commonwealth decreased to 80.6 million tons, the lowest level of recorded annual production since 1963. In 2012, Union County became the top producer of coal in Kentucky throughout the entire year. Pike County, the largest producer from 1978 to 2011, was the county with the most coal production in the eastern coalfield.

In Kentucky, coal mining is divided between two different geologic basins: the Central Appalachian Basin of eastern Kentucky and the Illinois Basin of western Kentucky. Kentucky is the only major coal exporting state to span two geologic basins, and the chemical composition of the coal from each is distinct. Both of these resource tracts contain rich deposits of bituminous coal, and have witnessed coal-mining activities for at least 220 years. The coalfield of eastern Kentucky has coal with a relatively higher heat content and lower sulfur content than western Kentucky. However, western Kentucky coal is relatively less expensive than eastern Kentucky coal in terms of delivered price. The difference in the delivered price of coal between the two coalfields is a result of numerous factors including transportation costs, the ease of accessing coal and the subsequent mining techniques employed, and the chemical properties and heat content of the coal.

Kentucky Coal Production

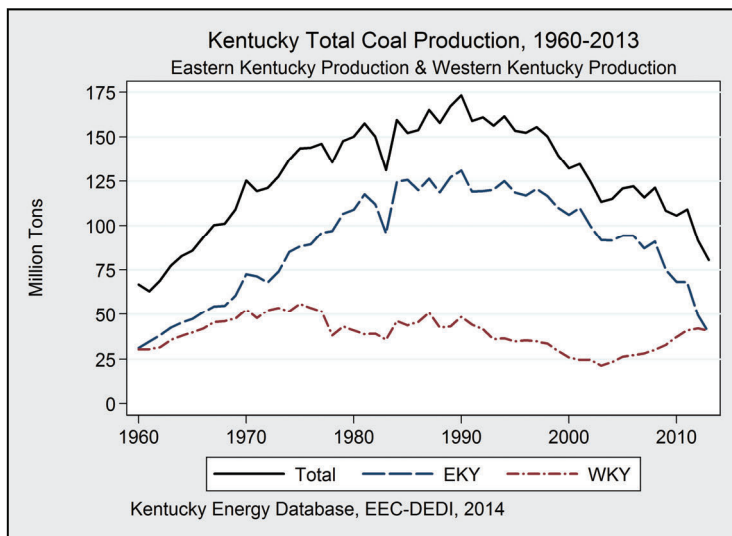


Region	2013 Tonnage	Annual Change
Total	80,551,297	-11.96%
Eastern Kentucky	40,878,963	-2.8%
Western Kentucky	39,672,334	-19.8%

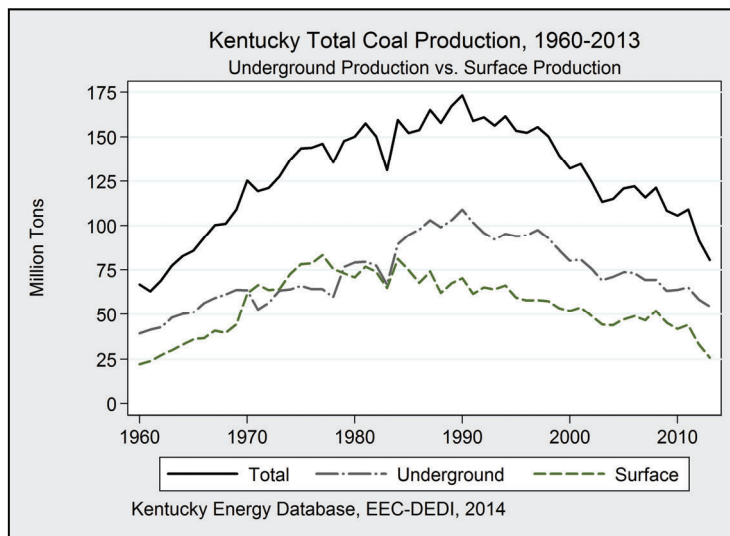
Kentucky coal mines produced 80.6 million tons in 2013, a decrease of 12 percent from 2012. The eastern and western coalfields both recorded declines in production in 2013.

Mine Type	2013 Tonnage	Annual Change
Total	80,551,297	-11.6%
Underground	54,620,360	-6.4%
Surface	25,930,937	-21.8%

The majority of Kentucky coal production has been from underground operations since 1979, following the passage of the Surface Mine Control and Reclamation Act of 1977.



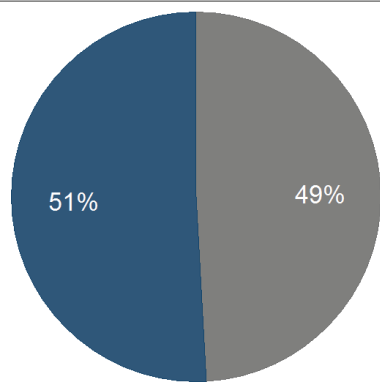
Eastern Kentucky has averaged 69 percent of annual coal production since 1911, when eastern Kentucky overtook western Kentucky as the top-producing coalfield. Overall, the statewide trend in coal production has been downward since 1990. However, recent regional trends have contrasted with western Kentucky substantially increasing production since 2002 while eastern Kentucky production has declined. Western Kentucky coal mines have produced the majority of coal in the state since the third quarter of 2013.



Underground coal mines produced 54.6 million tons of coal, or 68 percent of total Kentucky production in 2013, a decrease of 6.4 percent from 2012. Surface mining operations, which mined 25.9 million tons of coal, decreased production by 21.8 percent since 2012. Production declines in both surface and underground mining since 1990 have been concentrated in the eastern coalfield.

Eastern Kentucky Coal Production

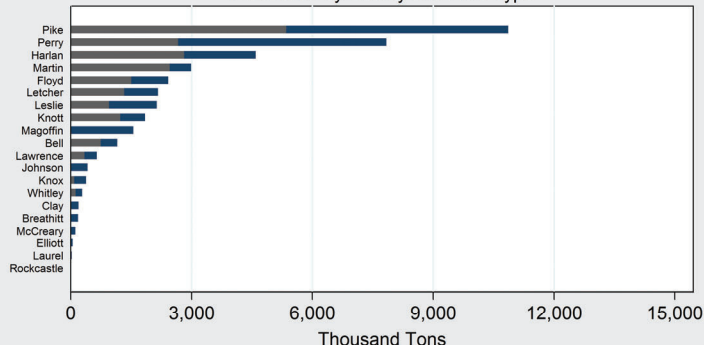
Eastern Kentucky Total Coal Production, 2013
Underground Production vs. Surface Production (%)



Underground Surface

Kentucky Energy Database, EEC-DEDI, 2014

Eastern Kentucky Coal Production, 2013
Production by County and Mine Type



Underground Surface

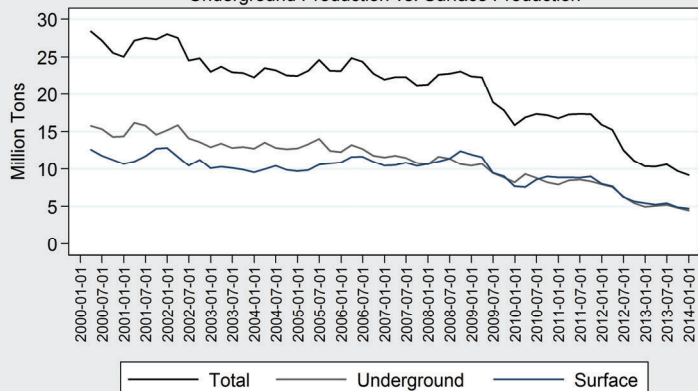
Kentucky Energy Database, EEC-DEDI, 2014

Microdata Source: MSHA-MDRS Queried on: 11 Mar 2014

Mine Type	2013 Tonnage	Annual Change
Total	39,672,334	-19.8%
Surface	20,099,065	-20.2%
Underground	19,573,269	-19.3%

Eastern Kentucky coal production decreased in 2013 by 19.8 percent to 39.7 million tons of coal, 50.7 percent from surface mines and 49 percent from underground mines.

Eastern Kentucky Quarterly Coal Production, 2000-2013
Underground Production vs. Surface Production



Kentucky Energy Database, EEC-DEDI, 2014

Microdata Source: MSHA-MDRS Queried on: 11 Mar 2014

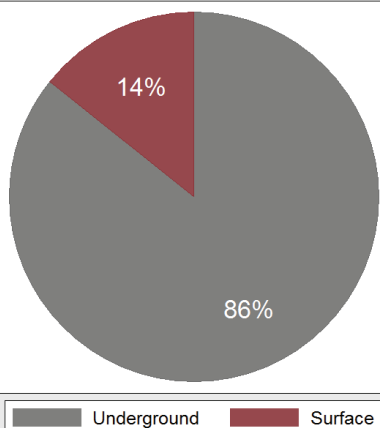
Production contracted at both surface and underground mining operations in 2013 by 20.2 and 19.3 percent respectively. The rate of eastern Kentucky coal production during the fourth quarter of 2013 was 9.2 million tons. Eastern Kentucky coal production has decreased by 63 percent since 2000 and by 70 percent since peak Kentucky production in 1990.

Eastern County	2013 Tonnage	Annual Change
Pike	10,950,788	-16.9%
Perry	7,606,172	-16.5%
Harlan	4,566,066	-34.7%
Martin	2,987,669	-16.7%
Floyd	2,441,648	-0.3%
Letcher	2,174,989	-27.5%
Leslie	2,136,704	-30.8%
Knott	1,902,183	-27.0%
Magoffin	1,551,124	-23.0%
Bell	1,156,997	-1.2%
Lawrence	643,970	+170.6%
Knox	380,039	+41.0%
Johnson	331,146	+1.1%
Whitley	285,761	+1.9%
Clay	181,527	-38.2%
Breathitt	180,251	-37.9%
McCreary	111,242	+250.4%
Elliott	46,421	+1,837.4%
Laurel	24,196	+91.6%
Rockcastle	13,441	+172.6%

Pike County yielded the most coal of any county in eastern Kentucky and was the second-largest producing county overall, mining nearly 11 million tons during 2013. Pike County was the highest coal producing county in Kentucky from 1978 to 2011 and produced the most coal of any county in Kentucky history in 1996 with 36 million tons of coal mined.

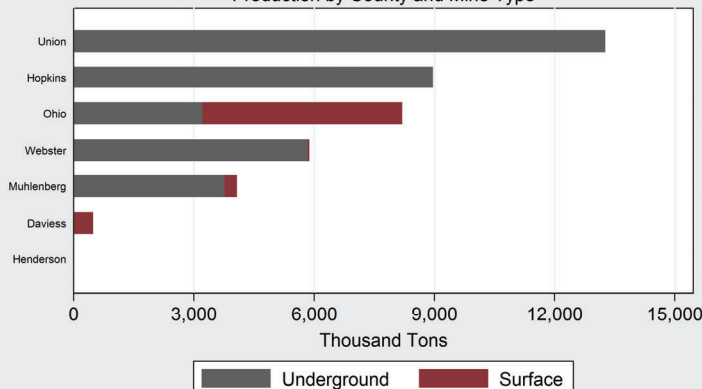
Western Kentucky Coal Production

Western Kentucky Total Coal Production, 2013
Underground Production vs. Surface Production (%)



Kentucky Energy Database, EEC-DEDI, 2014

Western Kentucky Coal Production, 2013
Production by County and Mine Type



Kentucky Energy Database, EEC-DEDI, 2014

Microdata Source: MSHA-MDRS Queried on: 11 Mar 2014

Mine Type	2013 Tonnage	Annual Change
Total	40,878,963	-2.8%
Underground	35,047,091	+3.0%
Surface	5,831,872	-26.7%

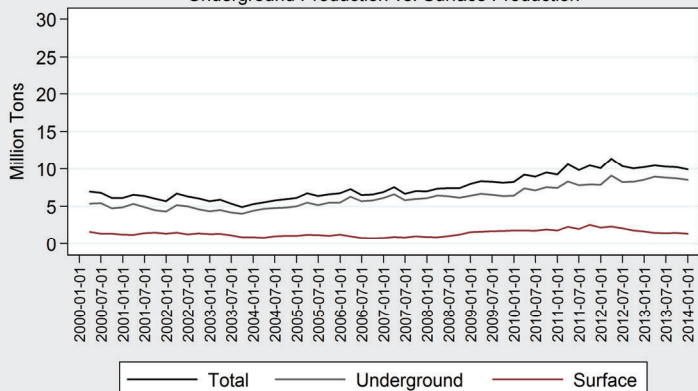
Western Kentucky mined 41 million tons in 2013, a decrease of 2.8 percent from the year prior. Of this, 86 percent of regional coal production was from underground mines.

Western County	2013 Tonnage	Annual Change
Union	13,265,616	-1.6%
Hopkins	8,963,894	+0.2%
Ohio	8,197,105	+13.4%
Webster	5,880,279	+5.9%
Muhlenberg	4,073,837	-16.7%
Daviess	484,569	+22.6%
Henderson	13,663	-99.1%

Union County remained Kentucky's leading coal producing county, mining nearly 13.3 million tons during 2013, though production in the county decreased by 1.6 percent from the year prior.

Most western Kentucky mining since 1985 has been underground. As a result of the topography and basinal structure of the Illinois Basin, surface coal production is relatively more accessible on the edges of the coalfield, where much of the economically viable coal has been extracted in years past. The topography, in part, explains the relative increase in underground mining in the region since 1983 and the relative decrease in surface mining since peak regional surface production in 1972.

Western Kentucky Quarterly Coal Production, 2000-2013
Underground Production vs. Surface Production



Kentucky Energy Database, EEC-DEDI, 2014

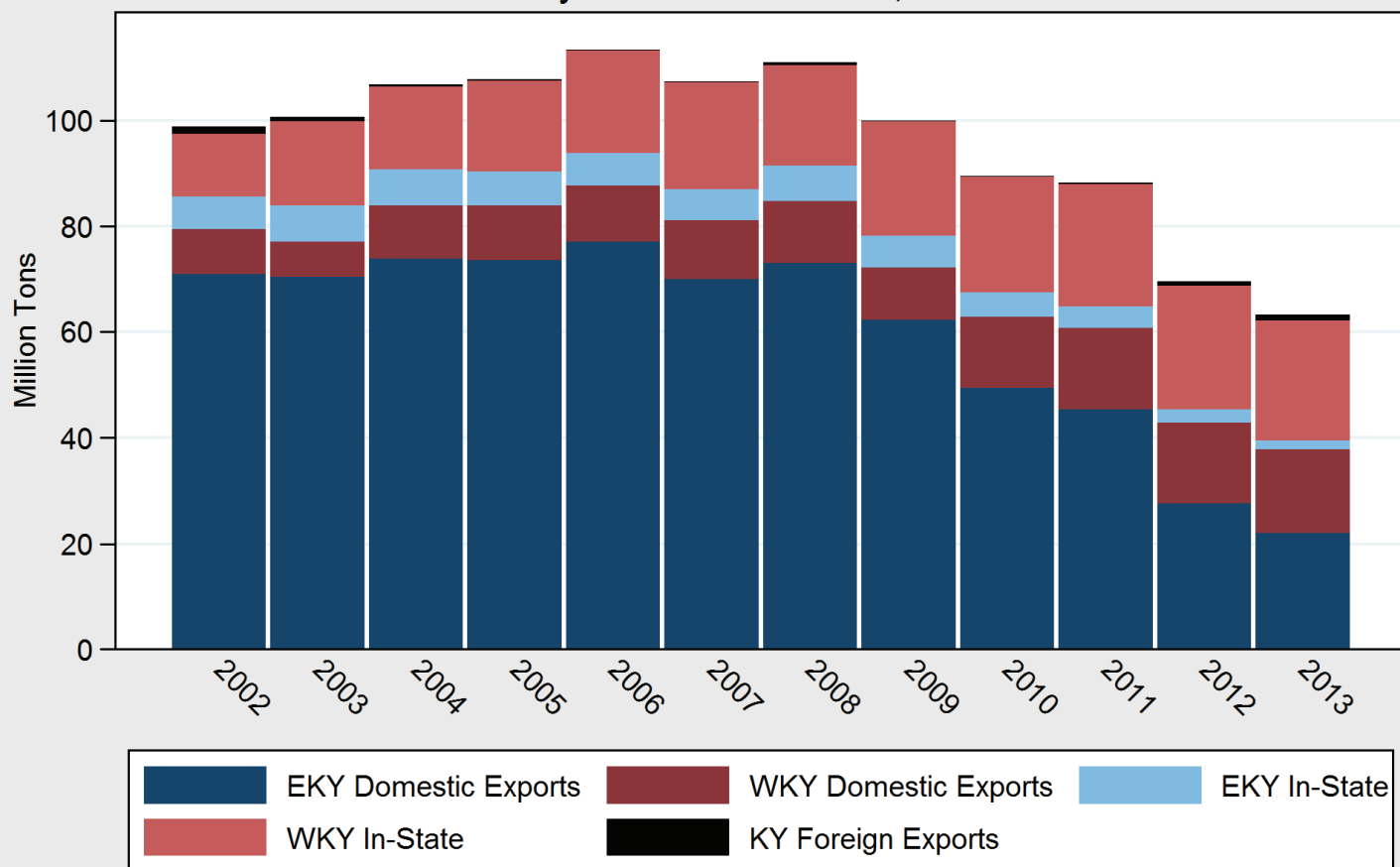
Microdata Source: MSHA-MDRS Queried on: 11 Mar 2014

Underground mining increased by 3 percent in 2013, while surface mining decreased by 26.7 percent. The rate of coal production for the fourth quarter of 2013 was 9.9 million tons per quarter. Western Kentucky annual coal production has decreased by 15.5 percent since 1990, but has increased by 90.1 percent since 2003.

The majority of western Kentucky coal production was excavated by surface mining until 1985. In fact, Muhlenberg county was the Commonwealth's leading coal producer from 1961 to 1978, predominantly through the utilization of surface mining techniques.

Kentucky Coal Distribution, 2013

Kentucky Coal Distribution, 2002-2013



Kentucky Energy Database, EEC-DEDI, 2014

Data Source: EIA-923 & U.S. Census Bureau-Foreign Trade Division

Coal Distribution by Destination, 2013

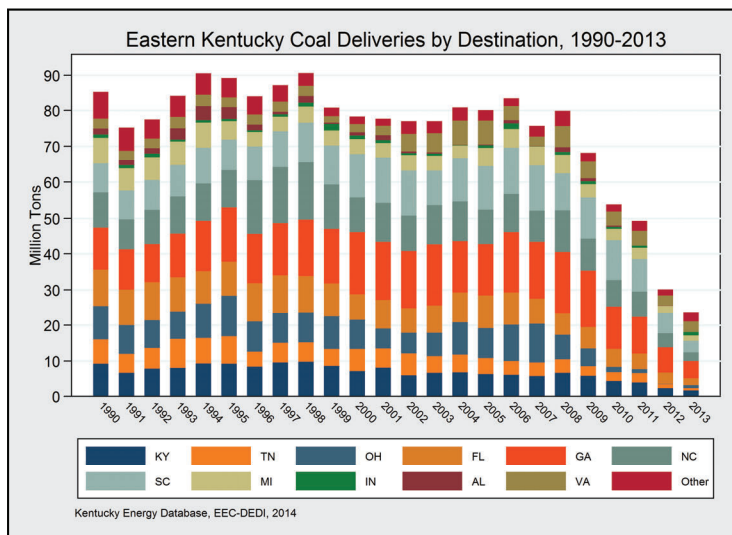
Coal and Destination	Thousand Tons	Percentage
Total Distribution	63,220	100%
WKY In-State	22,562	36%
EKY Out-of-State*	22,110	35%
WKY Out-of-State*	15,775	25%
EKY In-State	1,624	3%
Foreign Exports	1,149	2%

*Totals labeled "Out-of-State" represent shipments of coal to consumers within the United States, and may also be considered domestic exports. A difference of approximately 17.3 million tons exists between total production and total distribution in the table above due to coal stockpiling, lags in data reporting, calendar year parameters, comparison of statistics across multiple data sources, and reporting errors.

The annual distribution of coal mined in Kentucky is a combination of in-state consumers, out-of-state power plants, factories, and foreign exports. Demand from out-of-state consumers has consistently been the largest component of Kentucky coal deliveries since 1990.

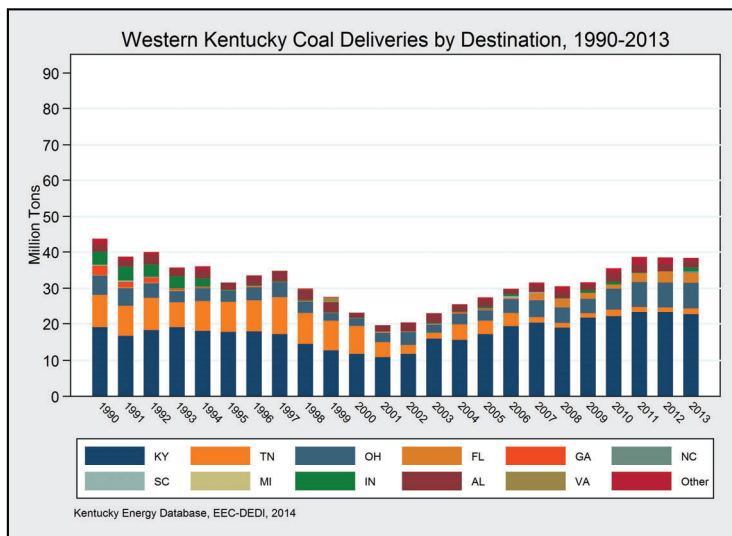
Eastern Kentucky coal has predominantly been sold to states in the southeastern United States. Conversely, western Kentucky coal has mostly been mined for in-state consumption. Kentucky remains the largest single consumer of Kentucky coal, increasing its consumption as other states have decreased their consumption of coal from Kentucky. Big Sandy and Cooper power plants consume most of the eastern Kentucky coal consumed in Kentucky. Known foreign exports reached their highest point in 2013 at 1.1 million tons, or 2 percent of coal deliveries.

Kentucky Coal Deliveries



Known shipments of steam coal from eastern Kentucky to power plants within the United States decreased by 21 percent in 2013 from 30.1 to 23.7 million tons. The largest markets for eastern Kentucky coal are traditionally located in the southeast, and were led by Georgia, South Carolina, and Virginia during the year. Overall, coal mined in the region was shipped to 16 different states in 2013.

Eastern Kentucky Coal Deliveries, 2013		
Destination	Thousand Tons	Percentage
Total	23,734	100%
Georgia	4,745	20.0%
South Carolina	3,213	13.5%
Virginia	2,969	12.5%
North Carolina	2,421	10.2%
West Virginia	1,999	8.4%
Florida	1,960	8.3%
Kentucky	1,624	6.8%
Michigan	1,482	6.2%
Indiana	959	4.0%
Tennessee	904	3.8%
Ohio	781	3.3%
Maryland	339	1.4%
Mississippi	277	1.2%
Pennsylvania	34	<1.0%
Delaware	24	<1.0%
Illinois	3	<1.0%



Known shipments of steam coal from western Kentucky to power plants within the United States decreased by 0.3 percent in 2013 from 38.4 to 38.3 million tons. The largest market for western Kentucky coal is consistently Kentucky, which represented 58.9 percent of western Kentucky coal deliveries during the year. Overall, coal mined in western Kentucky was shipped to 10 different states in 2013. Western Kentucky coal deliveries have increased by 7.8 million tons since 2008, or by 26 percent.

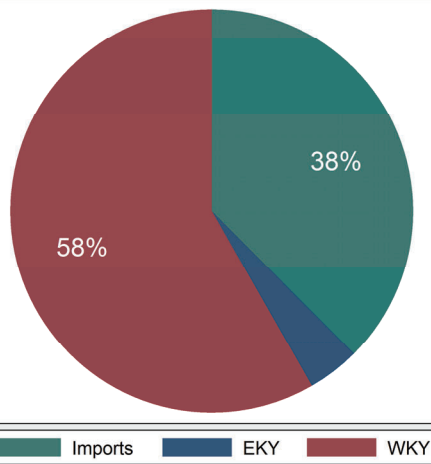
Western Kentucky Coal Deliveries, 2013		
Destination	Thousand Tons	Percentage
Total	38,337	100%
Kentucky	22,562	59%
Florida	7,040	18%
Ohio	2,752	7%
Tennessee	1,881	5%
Alabama	1,666	4%
Indiana	1,125	3%
West Virginia	495	1%
North Carolina	433	1%
Mississippi	278	<1.0%
Illinois	105	<1.0%

Kentucky Coal Deliveries, 2013		
Origin	Thousand Tons	1 Year Change
Total	62,071	-9.5%
WKY	38,337	-0.3%
EKY	23,734	-21.1%

Total Kentucky coal deliveries have decreased by 48.3 million tons, or by 44 percent since 2008, primarily because of reduced shipments from eastern Kentucky.

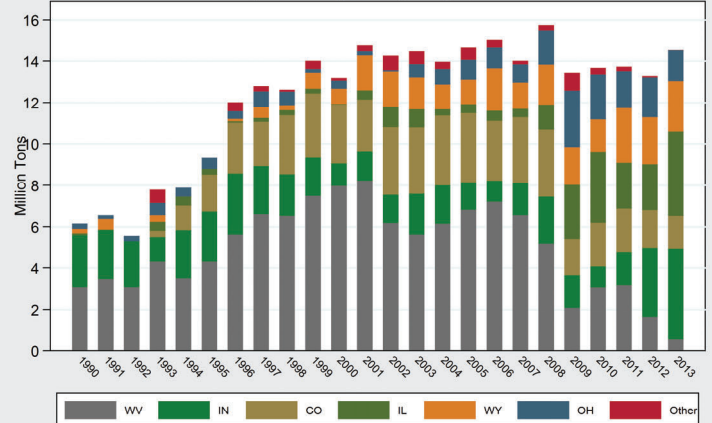
Kentucky Coal Consumption

Kentucky Coal Consumption by Origin, 2013



Kentucky Energy Database, EEC-DEDI, 2013

Kentucky Coal Imports by Origin, 1990-2013

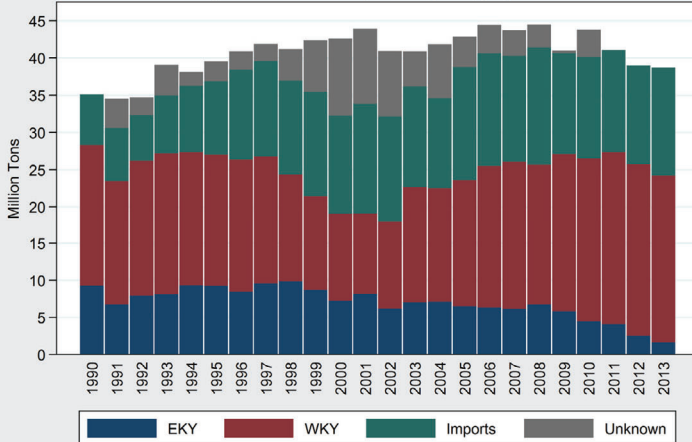


Kentucky Energy Database, EEC-DEDI, 2014
Microdata Source: EIA-923

Origin of Coal	Thousand Tons	1 Year Change
Total	38,710	-0.7%
Western Kentucky	22,562	-3.0%
Imports	14,523	9.0%
Eastern Kentucky	1,624	-35%

Imported Coal	Thousand Tons	1 Year Change
Total Imports	14,523	+9%
Indiana	4,412	+32%
Illinois	4,073	+83%
Wyoming	2,438	+8%
Colorado	1,570	-14%
Ohio	1,485	-23%
West Virginia	541	-67%
Tennessee	2	+166%

Kentucky Coal Consumption by Origin, 1990-2013



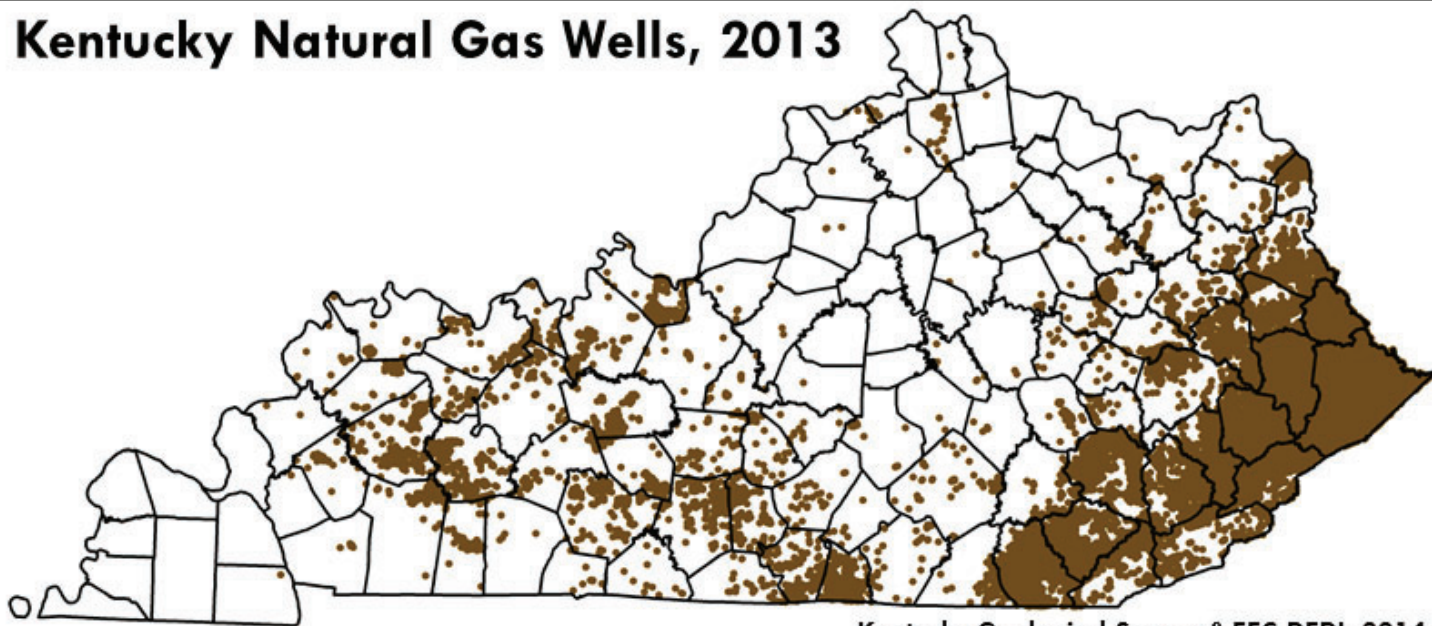
Kentucky Energy Database, EEC-DEDI, 2014

Coal consumption in Kentucky decreased by 0.7 percent in 2013 to 38.7 million tons. Coal mined in western Kentucky was by far the largest source of coal used within the state, representing 58 percent of coal consumption. Conversely, coal from eastern Kentucky accounted for 4 percent of the coal consumed in Kentucky in 2013. Kentucky imported coal from six different states during 2013, totaling 14.5 million tons, or 37.5 percent of coal consumption.

Several factors affect the use of imported coal in Kentucky including the price, delivery cost, heat content, and the sulfur content of a particular coal. For electrical power generation, utilities must balance the economic and environmental costs of these factors when purchasing coal. As a result, electric utilities, municipalities, and power producers often blend coal from a variety of sources to maintain a diversified cost-effective fuel resource while complying with environmental regulations. Since 1990, electric utilities in Kentucky have increasingly used coal containing relatively higher sulfur content, a trend accelerated through the installation of sulfur dioxide scrubbers on many coal-fired generators throughout the state. Nationally, many other electric utilities have elected to install similar environmental control systems, thereby altering traditional coal sourcing requirements. The net result of these recent decisions in Kentucky has meant an increasing reliance on western Kentucky coal supplies, and a diminishing demand for eastern Kentucky coal. The relatively low price of coal from several western states has also increased imports for electric power generation.

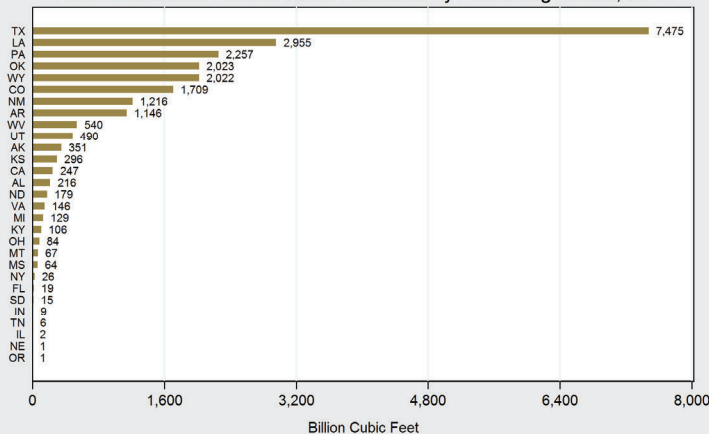
Kentucky Natural Gas Production

Kentucky Natural Gas Wells, 2013



Kentucky Geological Survey & EEC-DEDI, 2014

Annual Marketed Natural Gas Production by Producing States, 2012



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

State	2013 BCF	Rank
Texas	~8,200	1st
Kentucky	~300	18th

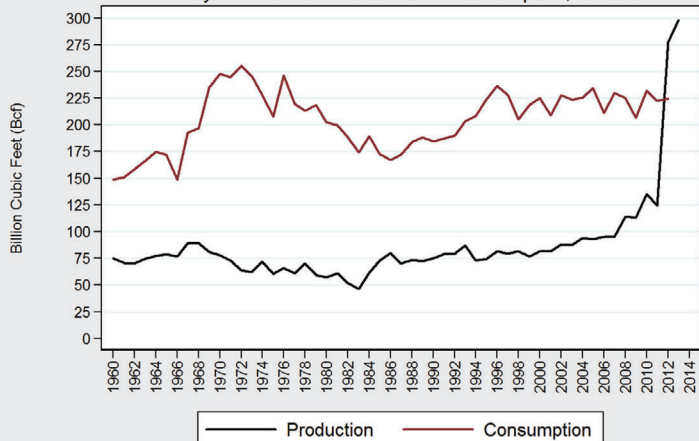
The Commonwealth of Kentucky produced a record 300 billion cubic feet (Bcf) of natural gas in 2013, a 140 percent increase in natural gas production from 2011. As shown in the map above, the majority of economically extractable natural gas is located in eastern Kentucky. While statewide natural gas production is projected to increase substantially, gas production in Kentucky contributes less than 1 percent of total U.S. production.

Though Kentucky is a natural gas producer, the state only began net exporting natural gas in 2012. Prior to 2012, Kentucky was a net importer of natural gas. During this period, Kentucky needed to import between 42 percent and 75 percent of annual natural gas consumption, as statewide consumption has outstripped statewide production.

Additional information on the location of natural gas fields and wells, is available from the Kentucky Geological Survey Geologic Map Information Service at:

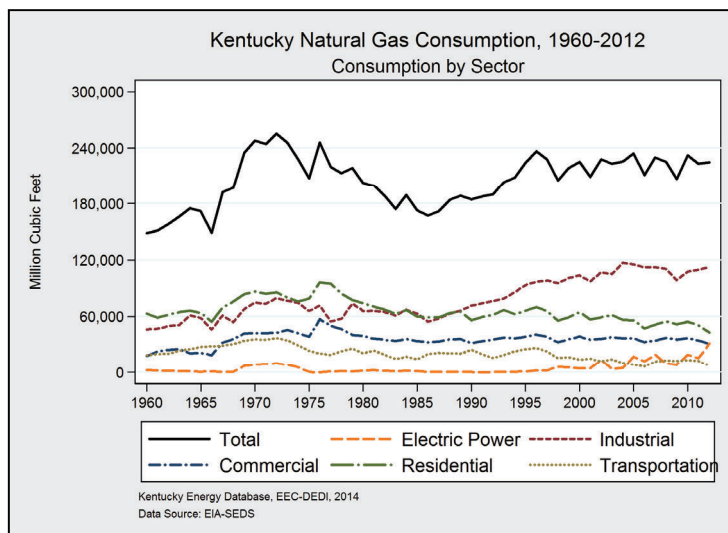
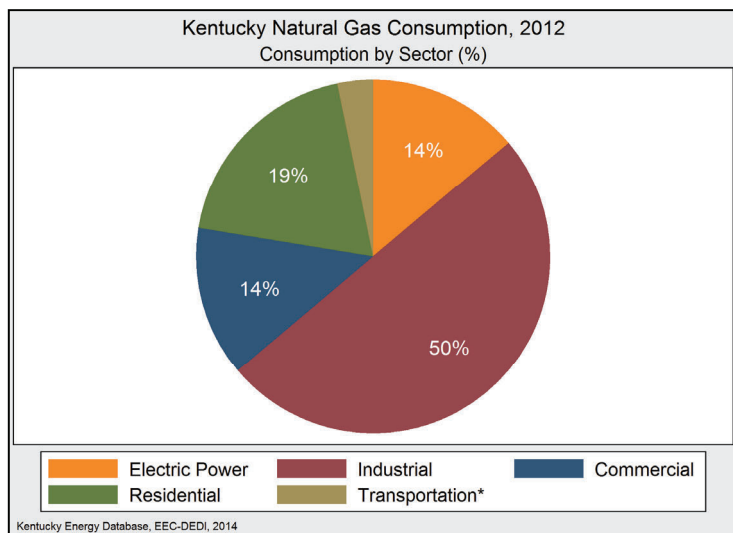
<http://kgs.uky.edu/kgsmap/kgsgeoserver/viewer.asp>

Kentucky Natural Gas Production & Consumption, 1960-2013



Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Natural Gas Consumption



Sector	Million Cubic Feet	Percentage
Total	224,591	100%
Industrial	112,276	50%
Residential	43,065	19%
Electric Power	31,194	14%
Commercial	30,771	14%
Transportation*	7,285	3%

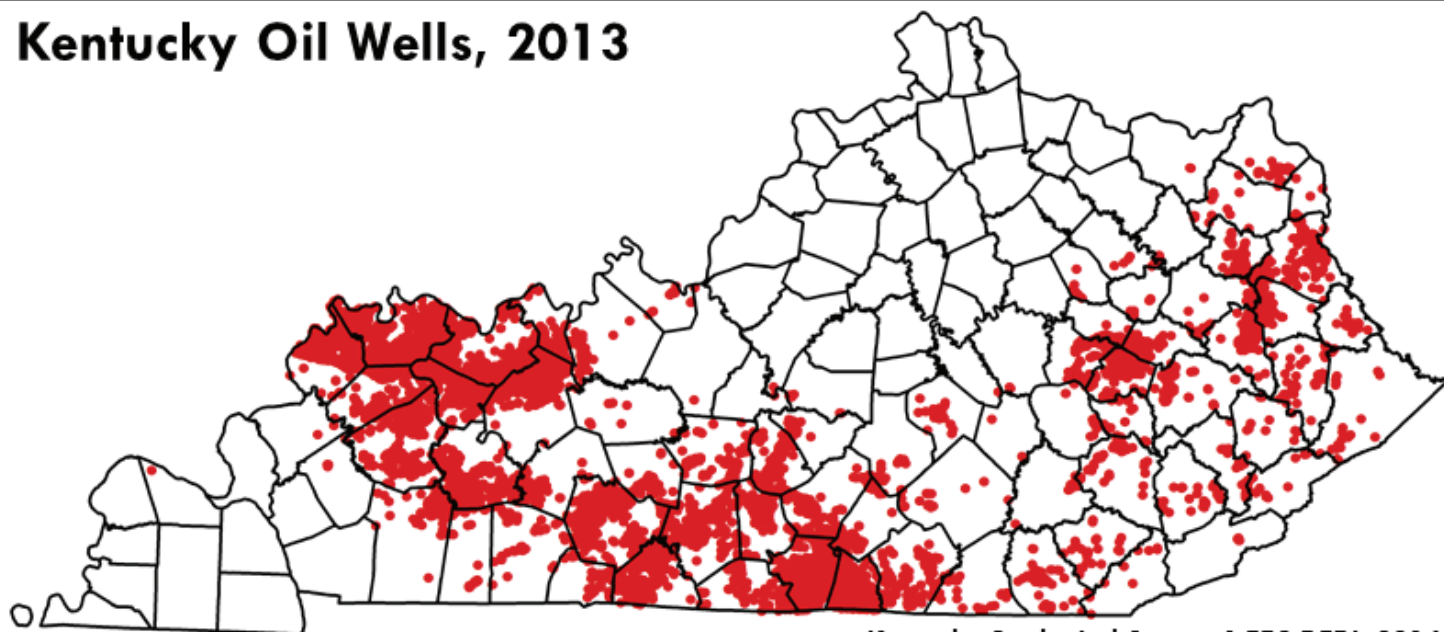
*Natural gas consumption by the transportation sector is the summation of vehicle fuel usage and natural gas used in the movement of natural gas resources through transmission and distribution pipelines. In Kentucky in 2012, direct vehicle fuel usage of natural gas was less than one MMcf. The remainder (7,285 MMcf) was consumed as natural gas pipeline fuel.

Kentucky's consumption of natural gas grew by less than 1 percent in 2012 to consume a total of 224,591 million cubic feet. The industrial sector was by far the largest consumer of natural gas, using 50 percent of the state total. The residential sector was the next largest consumer of natural gas with 19 percent of consumption. The electric power sector—with 14 percent of total natural gas consumption in 2012—has doubled its consumption of natural gas since 2011, and has increased consumption by 271 percent relative to 2009. Consumption of natural gas for electricity will likely increase in the future, as natural gas combined cycle (NGCC) plants replacing coal fired boilers at the Cane Run, Green River, Paradise power plants and NGCC turbines are installed at Riverside. The commercial and transportation consumed 14 percent and 3 percent of statewide consumption respectively.

The commercial and residential sectors consume natural gas to generate heat while industrial consumers primarily use natural gas as a process feedstock in manufacturing operations. As a result, residential and commercial consumption follows a seasonal pattern, with notable fluctuation due to weather while industrial consumption is more consistent throughout the year. The sizeable consumption by industrial firms is reflective of the large presence of industrial firms within Kentucky.

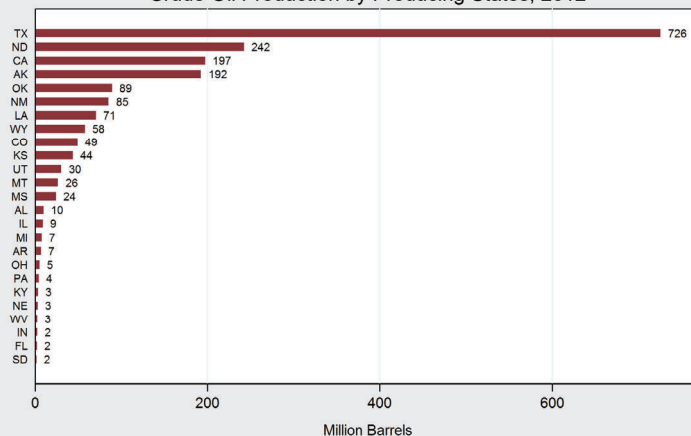
Kentucky Crude Oil Production

Kentucky Oil Wells, 2013



Kentucky Geological Survey & EEC-DEDI, 2014

Crude Oil Production by Producing States, 2012

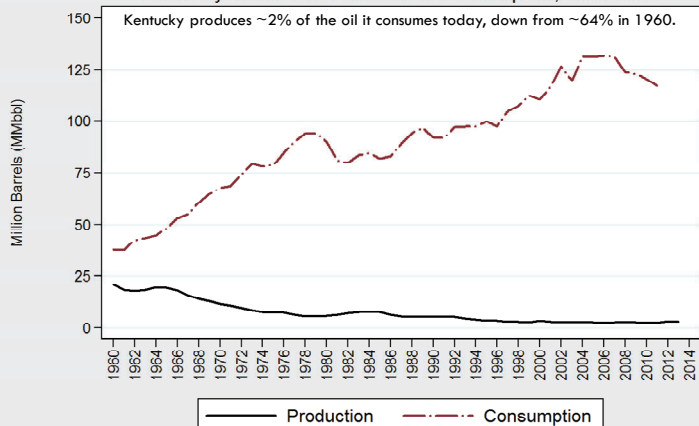


Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Production	2012 Million Barrels	Rank
Texas	725.8	1st
Kentucky	3.2	20th

Crude oil production in Kentucky increased by 38 percent in 2012 to produce 3.2 million barrels. Annual crude oil production in Kentucky had remained between 2.4 and 2.9 million barrels since the year 2000, but has recently increased with the adoption of horizontal hydraulic fracturing extraction practices. Despite this increase, in-state crude oil production contributes to less than 1 percent of total U.S. production.

Kentucky Crude Oil Production & Consumption, 1960-2013



Kentucky Energy Database, EEC-DEDI, 2014

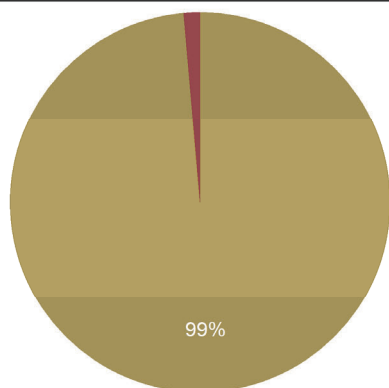
Though Kentucky is a producer of petroleum, it has on average imported 88 percent of petroleum supplies since 1960. As statewide consumption has increasingly outstripped production, petroleum imports have increased from 44 to 98 percent between 1960 and 2012. Since 2007, petroleum consumption has reversed trends and decreased by 13 percent.

Additional information on the location of oil fields and wells, is available from the Kentucky Geological Survey Geologic Map Information Service at:

<http://kgs.uky.edu/kgsmap/kgsgeoserver/viewer.asp>

Kentucky Liquid Fuel Consumption

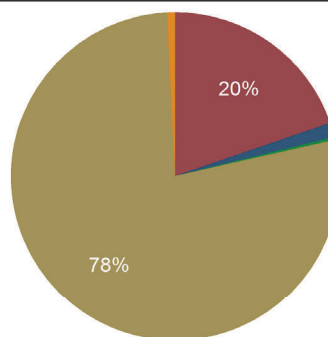
Kentucky Gasoline Consumption, 2012
Consumption by Sector (%)



Transportation Industrial

Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Diesel Consumption, 2012
Consumption by Sector (%)



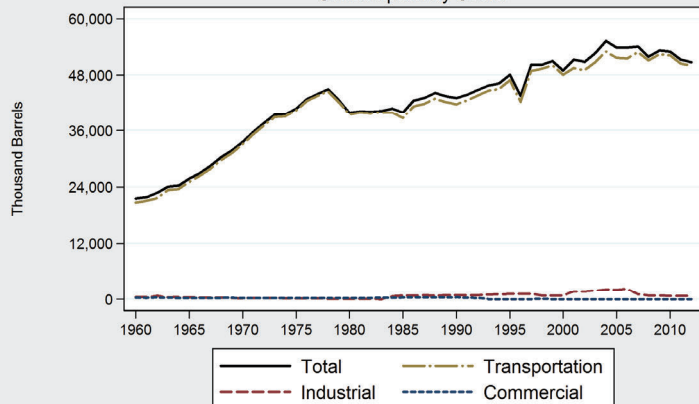
Industrial Commercial
Residential Transportation
Electric Power

Kentucky Energy Database, EEC-DEDI, 2014

Sector	Thousand Barrels	Percentage
Total	50,746	100%
Transportation	50,002	99%
Industrial	702	1%
Commercial	43	<1%

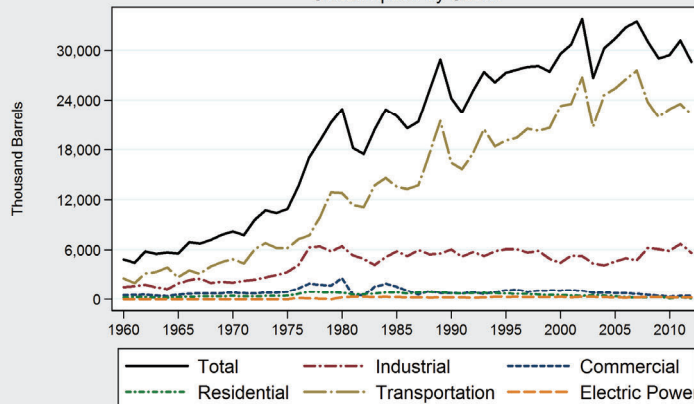
Sector	Thousand Barrels	Percentage
Total	28,658	100%
Transportation	22,276	78%
Industrial	5,674	20%
Commercial	401	1%
Electric Power	226	1%
Residential	80	<1%

Kentucky Gasoline Consumption, 1960-2012
Consumption by Sector



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Diesel Consumption, 1960-2012
Consumption by Sector



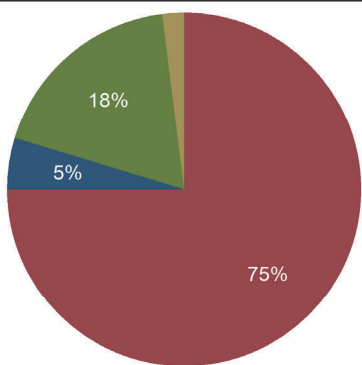
Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

In 2012, Kentucky consumed 50.8 million barrels of gasoline, with almost 99 percent used for transportation. Compared with 2011, total gasoline consumption in Kentucky decreased by 1 percent.

In 2012, Kentucky consumed 28.7 million barrels of diesel, an 8 percent decrease in overall consumption from 2011. While 76 percent of diesel consumption was used for transport, industrial users consumed 20 percent. The commercial, residential, and electric power sectors made up the remaining 2 percent in 2012.

Kentucky Liquid Fuel Consumption

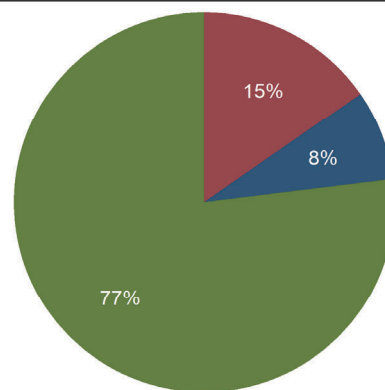
Kentucky Propane Consumption, 2012
Consumption by Sector (%)



Industrial Commercial
Residential Transportation

Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Kerosene Consumption, 2012
Consumption by Sector (%)



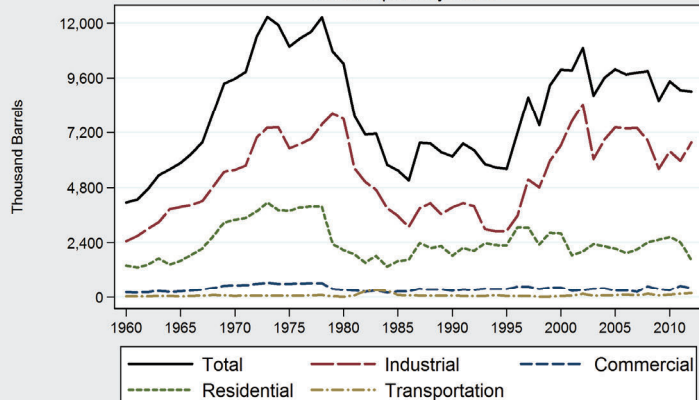
Industrial Commercial Residential

Kentucky Energy Database, EEC-DEDI, 2014

Sector	Thousand Barrels	Percentage
Total	9,011	100%
Industrial	6,757	75%
Residential	1,652	18%
Commercial	423	5%
Transportation	179	2%

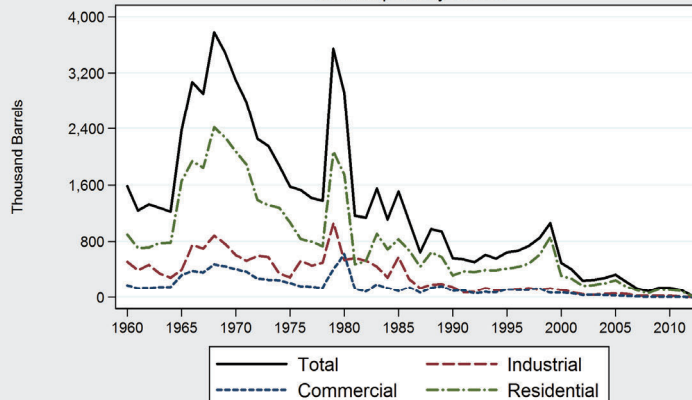
Sector	Thousand Barrels	Percentage
Total	26	100%
Residential	20	77%
Industrial	4	15%
Commercial	2	8%

Kentucky Propane Consumption, 1960-2012
Consumption by Sector



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Kerosene Consumption, 1960-2012
Consumption by Sector



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

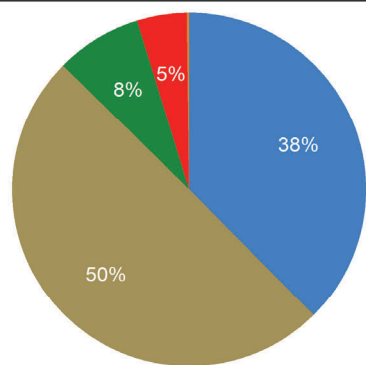
In 2012, nine million barrels of liquid petroleum gas, or propane, was consumed in Kentucky. Since 2011, consumption decreased by less than 1 percent. With 75 percent of total consumption, the industrial sector was the largest end-user of propane, followed by the residential sector with 18 percent. The commercial and transportation sectors comprised the remaining 7 percent of propane consumption in 2012.

In 2012, Kentucky consumed 26 thousand barrels of kerosene. The residential sector was by far the largest consumer of kerosene, consuming 77 percent of the total. The industrial sector was the next largest consumer with 15 percent of consumption. The commercial sector constituted the remaining 8 percent. Compared with 2011, Kentucky kerosene consumption decreased by 76 percent.

*These quantities exclude kerosene-type jet fuel, which is itemized in transportation energy consumption.

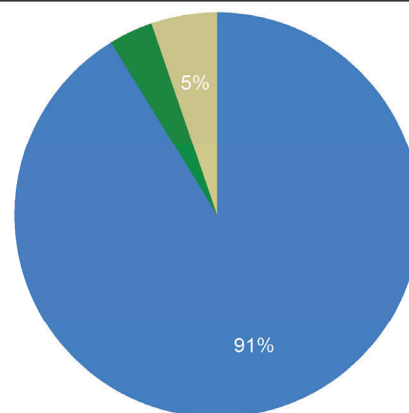
Kentucky Renewable Energy

Kentucky Renewable Energy Production, 2012
Energy Production by Fuel Type (%)



Kentucky Energy Database, EEC-DEDI, 2014

Kentucky Renewable Electricity Generation by Fuel, 2013

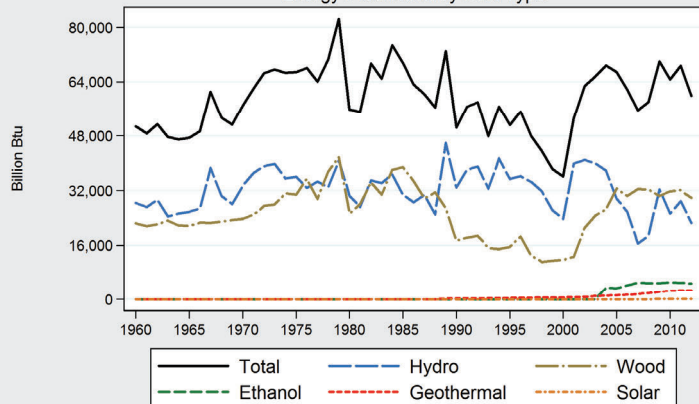


Kentucky Energy Database, EEC-DEDI, 2014

Fuel Type	Billion BTU	Percentage
Total	59,843	100%
Wood & Biomass	29,807	50%
Hydroelectric*	22,475	38%
Ethanol†	4,721	8%
Geothermal	2,712	5%
Solar	128	<1%

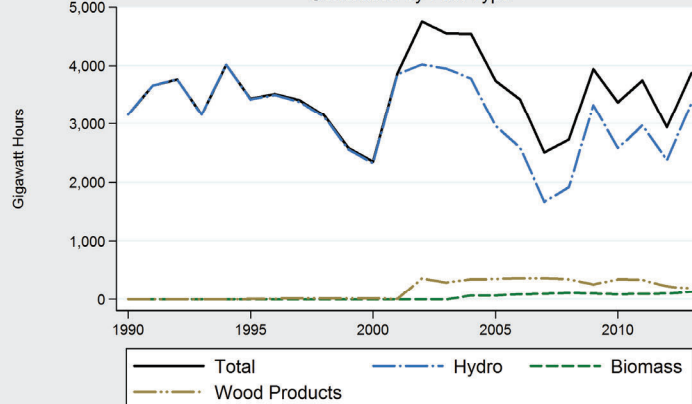
Fuel Type	Gigawatt Hours	Percentage
Total	3,678	100%
Hydroelectric*	3,356	91%
Woody Biomass	1,926	5%
Biomass	1,298	4%

Kentucky Renewable Energy Production, 1960-2012
Energy Production by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA-SEDS

Kentucky Renewable Electricity Generation, 1990-2013
Generation by Fuel Type



Kentucky Energy Database, EEC-DEDI, 2014
Data Source: EIA Electric Power Annual

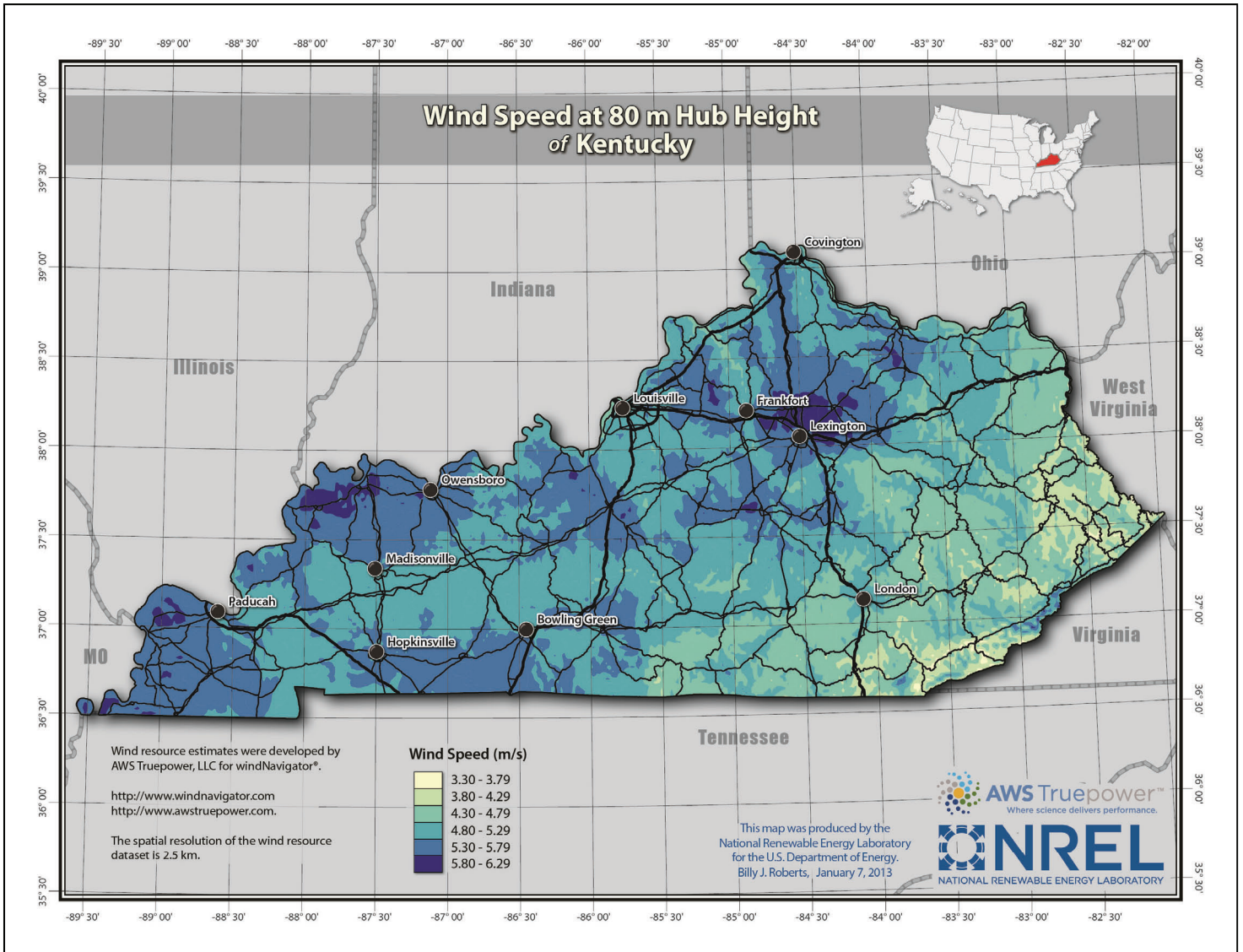
In 2012, Kentucky produced 60 trillion Btu of energy from renewable resources, a 13 percent decrease compared with 2011. Year-to-year fluctuations are mostly due to variations in hydroelectric power, which itself is a reflection of rainfall. Wood and biomass waste was half of all renewable energy produced in Kentucky in 2012 in terms of heat content with hydroelectric producing 38 percent, and the rest 12 percent.

†Ethanol includes the biomass inputs used in the production of ethanol. These data exclude the energy losses associated with making ethanol and the co-products gleaned during production and thereafter sold.

Hydroelectric power generated 91 percent of renewable electricity in Kentucky in 2013, or 3,678 gigawatt-hours of electricity. Total renewable electricity generation increased by 12 percent compared with 2012 as hydroelectric generation recovered from the drought of 2012.

*Hydroelectric generation is directly accounted through gigawatt-hour consumption, whereas hydroelectric production (billion Btu) is a calculated fossil fuel displacement conversion, or the amount of fossil fuel energy required to generate an equal amount of electricity.

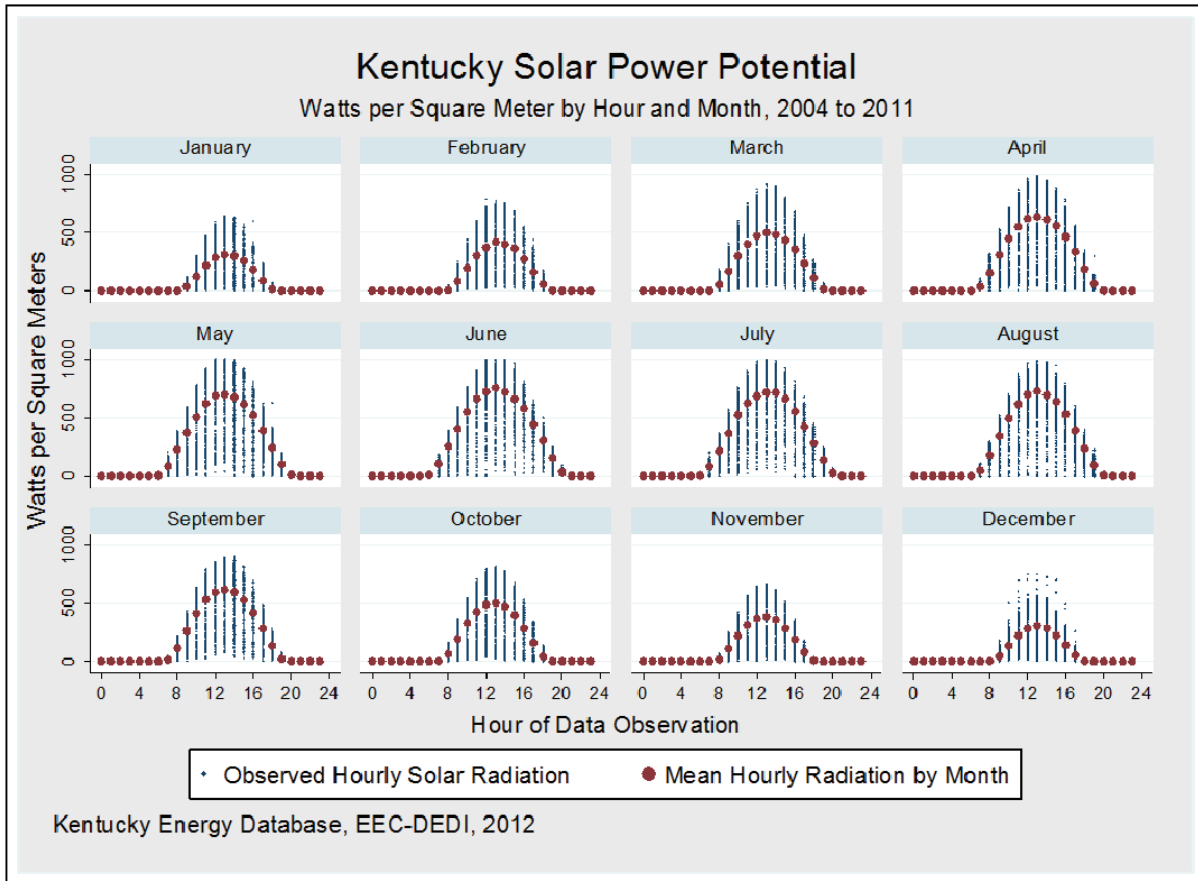
Kentucky Wind Power Potential



Kentucky's wind resource is yet undetermined, but limited relative to most states including Indiana, Ohio and West Virginia. Wind maps published by the National Renewable Energy Lab (NREL) in 2010 provide an initial assessment of the potential resource and establish areas of Kentucky that may be developable for utility-scale wind. This initial assessment was intended to direct wind developers to the windiest parts of the state. Developers have installed wind speed monitoring equipment in two areas. Over time, the collection of higher resolution data on wind speeds and wind patterns will help determine the economic feasibility of wind turbine construction within these areas.

According to The National Renewable Energy Laboratory (NREL) areas generally considered to have suitable wind resources for wind development are those with annual average wind speeds of greater than or equal to 6.5 meters per second (m/s) at a height of 80 meters. These windy areas identified by NREL would support wind farms with a gross capacity factor of 30 percent and higher. As a result, Kentucky's wind energy potential is 61 MW—less than .001 percent of the nearly 11 million MW potential nationally. At 100 meters, Kentucky's wind energy potential increases to 699 MW, which ranks 42nd nationally. The NREL assessment does provide wind energy potentials at lower wind speeds. However, NREL does not generally characterize low wind speed areas as suitable for wind development.

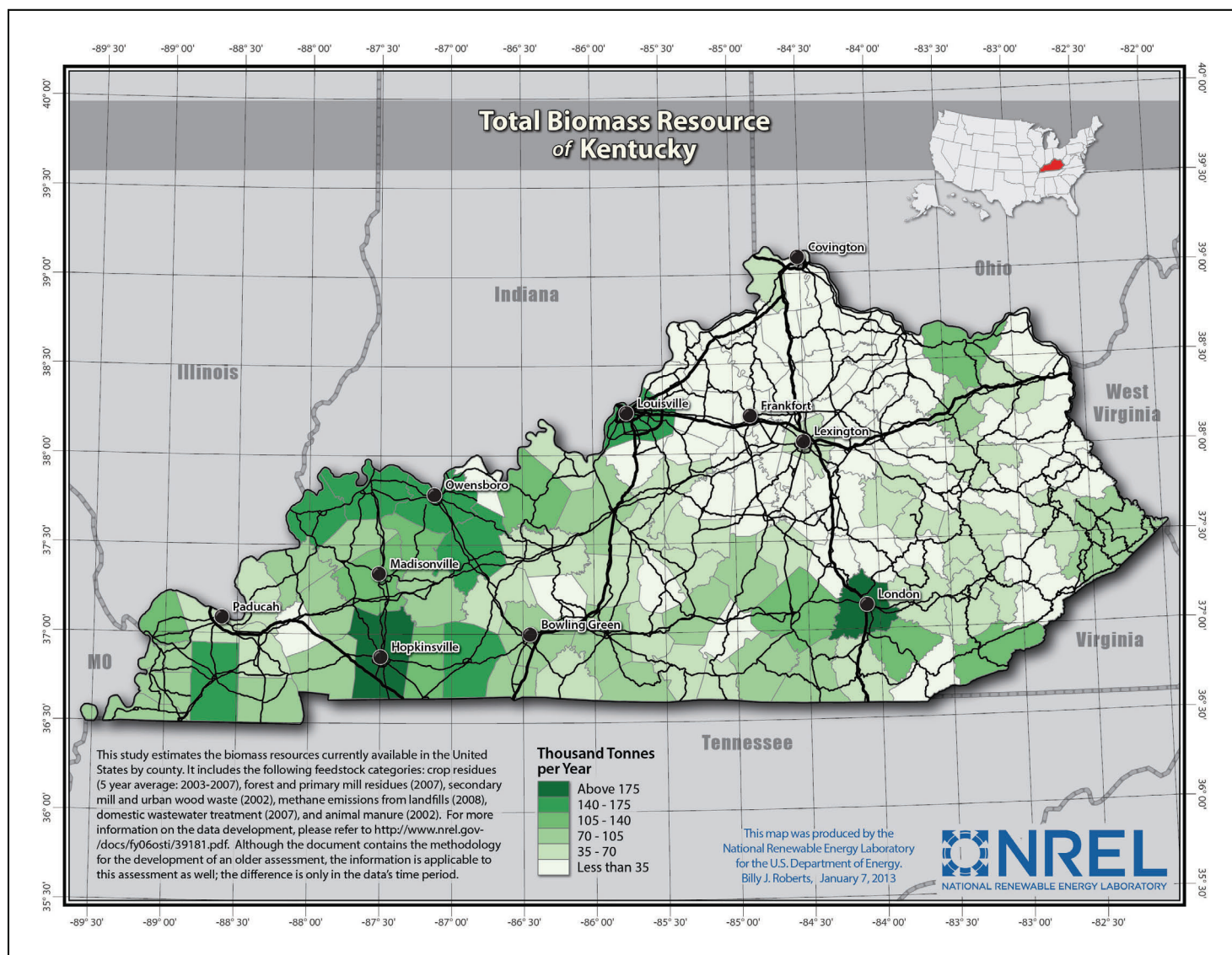
Kentucky Solar Power Potential



A well-maintained solar photovoltaic panel in central Kentucky could be expected to achieve an annual capacity factor of 14.85 percent. This means that one kilowatt of installed capacity would, on average, produce just under 15 percent of the panel's rated capacity, for a total of 1,295 kilowatt-hours annually. The above graphic and table below illustrate how actual generation potential has varied in Kentucky by month and time of day for the past eight years, ranging from 0 to 100 percent of rated capacity.

Kentucky Average Maximum Achievable Solar Capacity Factors, 2004-2011													
Hour	Annual	January	February	March	April	May	June	July	August	September	October	November	December
24/7	14.85%	6.60%	9.60%	12.87%	18.20%	21.10%	23.34%	22.09%	20.91%	16.56%	12.27%	8.47%	6.14%
5:00	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
6:00	0.196%	0.000%	0.000%	0.000%	0.012%	0.673%	1.192%	0.525%	0.024%	0.000%	0.000%	0.000%	0.000%
7:00	2.997%	0.000%	0.000%	0.115%	3.261%	8.242%	10.378%	7.927%	4.402%	1.355%	0.259%	0.000%	0.000%
8:00	10.651%	0.210%	0.656%	4.967%	15.233%	22.615%	25.471%	21.379%	17.934%	11.319%	6.276%	1.541%	0.080%
9:00	22.358%	3.412%	7.930%	16.790%	30.558%	37.324%	40.458%	36.529%	34.413%	26.143%	19.309%	10.667%	4.435%
10:00	35.151%	12.071%	19.269%	29.657%	44.536%	50.266%	54.952%	52.302%	49.250%	41.347%	32.614%	21.920%	13.331%
11:00	45.633%	21.521%	30.015%	40.180%	54.893%	62.083%	66.078%	62.548%	61.545%	52.872%	42.529%	30.914%	22.198%
12:00	52.219%	28.232%	37.108%	46.994%	62.072%	68.977%	72.146%	68.565%	69.879%	59.308%	48.674%	36.653%	27.839%
13:00	54.647%	30.928%	41.754%	49.742%	63.652%	69.912%	75.576%	71.583%	72.809%	61.501%	50.065%	38.182%	29.999%
14:00	52.430%	29.661%	40.038%	48.129%	61.288%	67.462%	71.968%	71.549%	69.383%	59.444%	46.759%	35.593%	28.040%
15:00	46.760%	25.494%	36.249%	43.110%	55.708%	61.769%	66.218%	66.383%	63.844%	52.556%	39.604%	28.153%	21.972%
16:00	37.260%	18.213%	26.923%	36.366%	46.214%	51.793%	57.906%	55.296%	52.742%	41.795%	28.159%	18.733%	13.908%
17:00	25.275%	8.653%	16.055%	23.433%	33.288%	39.210%	44.043%	42.394%	39.128%	28.148%	15.850%	7.701%	5.212%
18:00	13.378%	1.339%	5.230%	10.832%	18.635%	24.233%	33.032%	27.881%	23.669%	13.263%	4.091%	0.588%	0.209%
19:00	4.833%	0.000%	0.150%	1.492%	5.810%	9.846%	15.339%	13.753%	9.173%	2.097%	0.055%	0.000%	0.000%
20:00	0.669%	0.000%	0.000%	0.000%	0.095%	1.144%	3.249%	2.722%	0.765%	0.002%	0.000%	0.000%	0.000%
21:00	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.005%	0.003%	0.000%	0.000%	0.000%	0.000%	0.000%
22:00	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Kentucky Biomass Resource Potential



Kentucky has considerable existing biomass resources and areas suitable for development in every region of the state. Kentucky's natural climate provides an environment in which a variety of renewable energy sources can be produced, including woody biomass resources and crop harvests. Under proper management, these resources can provide annual yields of primary energy commodities that can be converted into liquid fuels or electricity. In Kentucky, the refinement of biodiesel and ethanol from soybeans and corn grown on Kentucky's cropland is the most prominent source of biomass-based energy production. During 2010, the state produced more than 884,000 barrels of ethanol. Existing production and refinement capacity coupled with infrastructure assets that include interstates, navigable rivers, railroads, and other energy industries makes Kentucky an ideal location for future development.

Beyond biofuel production, Kentucky also utilizes biomass resources to generate electricity on an annual basis. For example, in 2013 wood, wood wastes, crop residues, and landfill gas resources generated 332 gigawatt-hours of electricity in Kentucky. However, this biomass-based electricity generation remains less than 1 percent of total electricity generation in Kentucky, and reflects the current market challenges faced by biomass commodities.

Many of Kentucky's universities are involved in research efforts that are designed to test the scalability of various biomass projects and promote the commercialization of existing biomass resources.

Glossary

Aviation Gasoline: A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines.

Biomass: Organic non-fossil material of biological origin constituting a renewable energy source.

British Thermal Unit (BTU): The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).

Central Appalachian Basin: The Central Appalachian Coal Basin is the middle basin of three basins that comprise the Appalachian Coal Region of the eastern United States. It includes parts of Kentucky, Tennessee, Virginia, and West Virginia.^(G)

Coal: A naturally occurring, combustible, sedimentary rock containing at least 50 percent by weight organic matter, a solid “fossil” fuel.^(G)

Coal Export: A quantity of coal shipped, delivered, and combusted within a state different from the coal mine state of origin.^(D)

Coalfield: A geographic region characterized by coal resources.^(G)

Coal Import: A quantity of coal delivered and combusted within a state, but not originating from a coal mine within the same state.^(D)

Commercial Sector: An energy-consuming sector that consists of service-providing facilities and equipment of businesses; federal, state, and local governments; educational institutions, and other private and public organizations, such as religious, social, or fraternal groups.

Diesel: A fuel composed of distillates obtained in petroleum refining operation, or blends of such distillates with residual oil used in motor vehicles.

Electric Power Sector: An energy-consuming sector that consists of electricity only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public (NAICS 22). This sector includes electric utilities and independent power producers.

Electric Service Area: The geographic served exclusively by one retail electricity provider.^(D)

Electricity Distribution: The delivery of electrical energy to a customer's home or business through low-voltage lines (typically at 69 kilovolts or less).^(D)

Electricity Generation: The conversion of energy resources into electric power.

Electricity Rate: The average amount of money charged for each unit of electrical energy (kWh) distributed to a customer.^(D)

Electricity Transmission: The movement or transfer of electric energy at high voltage over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to consumers or is delivered to other electric systems.

Energy Consumption: The processes of converting energy supplies into useful forms such as heat, steam, electricity, and motion.^(D)

Energy Production: The processes of extraction, collection, or utilization of energy resources for the purpose of creating accessible energy supplies (i.e. - available for sale and distribution).^(D)

Ethanol: A clear, colorless, flammable alcohol. Ethanol is typically produced biologically from biomass feedstock such as agricultural crops and cellulosic residues from agricultural crops or wood.

Gasoline: A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines.

Geothermal Energy: Hot water or steam extracted from geothermal reservoirs in the earth's crust. Also, a subterranean energy source utilized by residential heat pumps and air conditioning units.

Glossary

Gigawatt (GW): A measure of electrical power. Specifically, one billion watts or one thousand megawatts.

Gigawatt Hour (GWh): A measure of electrical energy defined as a unit of work, measured as 1 gigawatt (1,000,000,000 watts) of power expended for 1 hour.

Hydroelectric Energy: The use of flowing water to produce electrical energy.

Illinois Basin: The coal producing areas of western Kentucky, southern Illinois, and southwest Indiana.^(G)

Industrial Sector: An energy-consuming sector that consists of all facilities and equipment used for producing, processing, or assembling goods. The industrial sector encompasses the following types of activity: manufacturing, agriculture, forestry, fishing and hunting; mining, oil and gas extraction, and construction.

Jet Fuel: A refined petroleum product used in jet aircraft engines. It includes kerosene-type Jet Fuel and naphtha-type Jet Fuel.

Kerosene: A light petroleum distillate that is used in space heaters, cook stoves, and water heaters and is suitable for use as a light source when burned in wick-fed lamps.

Kilowatt (kW): A measure of electrical power. Specifically, one thousand watts.

Kilowatt Hour (kWh): A measure of electrical energy defined as a unit of work, measured as 1 Kilowatt (1,000 watts) of power expended for 1 hour.

Megawatt (MW): A measure of electrical power. Specifically, one million watts.

Megawatt Hour (MWh): A measure of electrical energy defined as a unit of work, measured as 1 Megawatt (1,000,000 watts) of power expended for 1 hour.

Metallurgical Coal: Coking coal and pulverized coal containing the proper chemical characteristics to facilitate the production of steel.

Natural Gas: A naturally occurring combustible mixture of light hydrocarbon (primarily methane) and inorganic gases that often occurs in porous and permeable sedimentary rocks, a gaseous “fossil” fuel.^(G)

Natural Gas Liquids: Propane and butanes, which are dissolved in natural gas at reservoir pressure but condense into liquids at normal atmospheric pressure. Also called condensates, these liquids are removed from initial natural gas production and refined into a variety of additional energy products.^(D)

Net Energy Consumption: The measurement of the total British Thermal Unit (BTU) value of energy resources utilized or combusted, subtracting the quantity of energy lost in the conversion of a primary energy source into a secondary, useful energy source.^(D)

Petroleum: A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities.

Primary Energy: Energy in the form that it is first accounted for in a statistical energy balance, before any transformation to secondary or tertiary forms of energy.

Propane: A normally gaseous straight-chain hydrocarbon, that is extracted from natural gas or refinery gas streams.

Regulated Emissions: Relating to sulfur dioxide (SO₂), nitrogen oxides (NO_x), and other particulates, the release of these constituents by electric generating units are restricted by provisions of the Clean Air Act amendments of 1990. Federal and state regulatory agencies are required to monitor the production and movement of these emissions, and ensure their mandated control and reduction.^(D)

Renewable Energy: There is no formal, universally accepted definition for this term. Typical usage may define renewable energy as energy resources that are naturally replenishing but flow-limited. Such resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time.

Glossary

Residential Sector: An energy-consuming sector that consists of living quarters for private households. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances.

Rural Electric Cooperative Corporation (RECC): Electric utilities that are owned by their individual rate-payers and are non-profit entities that reinvest profits into energy infrastructure or are returned to rate-payers.^(D)

Steam Coal: Coal used in boilers to generate steam for the purpose of electricity generation or heat and power distribution.

Surface Coal Mine Operation: A coal mine operation that produces coal through extraction processes removing surface layers of soil, rock, and coal deposits.^(D)

Total Energy Consumption: The measurement of the total British Thermal Unit (BTU) value of primary energy resources utilized or combusted.^(D)

Transportation Sector: An energy-consuming sector that consists of all vehicles whose primary purpose is transporting people and/or goods from one physical location to another. This sector includes the natural gas utilized in the movement of natural gas resources through transmission pipeline.

Underground Coal Mine Operation: A coal mine operation that produces coal through solely subterranean extraction processes.^(D)

Volt (V): A measure of electrical potential or electromotive force.

Watt (W): The unit of electrical power equal to one ampere under a pressure of one volt. A Watt is equal to 1/746 horse power.

Wood & Wood Waste: Wood and wood products, possibly including scrubs, branches, sawdust, etc., bought or gathered, and used by direct combustion.

*** All definitions are cited from the Energy Information Administration (E.I.A.) Glossary unless otherwise noted.

(D) - Kentucky Department for Energy Development and Independence (DEDI)

(G) - Kentucky Geological Survey (KGS)

Acknowledgements

The Kentucky Energy and Environment Cabinet would like to recognize the following individuals for their numerous contributions to the 2014 edition of the Kentucky Energy Profile.

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