2011 Energy Profile

Kentucky Department for Energy Development & Independence

Kentucky Energy & Environment Cabinet

DEDI
KENTUCKY DEPARTMENT for ENERGY DEVELOPMENT & INDEPENDENCE

Foreword

Fellow Kentuckians,

The Energy and Environment Cabinet and the Department for Energy Development and Independence (DEDI) present the second edition of the Kentucky Energy Profile to provide Kentuckians with a snapshot of energy production and consumption within the Commonwealth, as well as a foundation for discussing Kentucky's energy future. All of the information summarized in this report was obtained from public sources, including a variety of state and Federal Government agencies.

Kentucky continues to be a national leader in energy production. Kentucky is the nation's third largest producer of coal, with rich deposits of low-sulfur coal in the Appalachian mountains of Eastern Kentucky and deposits of Illinois Basin coal in Western Kentucky. The Commonwealth also produces natural gas, a limited amount of crude oil, and is home to a 212,000 barrel per day petroleum refinery and two ethanol production facilities.

Kentucky is also a leading consumer of energy with the 8th highest per capita energy consumption in the United States. In 2009, Kentucky consumed a total of 41 million tons of coal, 125 million barrels of petroleum products, and 206 billion cubic feet of natural gas. This energy consumption cost Kentucky's citizens, institutions, and businesses over $17.4 billion, which was 11% of the Commonwealth's total Gross Domestic Product. The majority of this energy was consumed by large manufacturing facilities, which have located in Kentucky in part because of low and stable energy costs.

Clearly, energy is of critical importance to the Commonwealth. We hope that you will find this report informative and useful. We welcome your questions and feedback—please direct all inquiries to Alan Waddell (James.Waddell@ky.gov) or call 1-502-564-7192.

Sincerely,

Secretary Leonard K. Peters,

Kentucky Energy and Environment Cabinet

Table of Contents

Table of Contents

Executive Summary

The second edition of the *Kentucky Energy Profile* is offered to the public to serve as an impartial point of reference for data regarding energy within the Commonwealth of Kentucky. A product of extensive research, database construction, and quantitative analysis, this profile is designed to help identify and explain the aggregate dynamics of energy consumption and energy production that are particular to Kentucky. Using summary statistics and time series graphics, the *Kentucky Energy Profile 2011* approaches these topics from the perspectives of energy commodities and supply requirements, as well as energy usage by specific sectors of the economy. Additionally, great effort is focused on supplying the reader with the most recent data. Most data is from calendar year 2009, with 2010 data used where available.

Organization

This document is divided into four general sections: Energy Commodity Costs & Expenditures, Energy Consumption, Energy Production, and Electricity. The division of this material is designed to focus information and analysis on particular areas of interest, while providing a holistic perspective on the broader dynamics and relationships of energy and the economy. It is the desire of the Kentucky Department for Energy Development and Independence (DEDI) that this document be used by policy-makers, researchers, businesses, and interested citizens to frame and inform discussions and decisions related to energy policy within the Commonwealth of Kentucky.

Expenditures

Expenditures relating to energy consumption in Kentucky in 2009 totaled over $17.4 Billion. Reflecting a 24% decrease in total energy expenditures compared with 2008, the analysis in expenditures is divided between expenditures by economic sector or expenditures by fuel type (or commodity). In 2009, the Transportation Sector was the largest concentration of energy expenditures, accounting for 46% of total expenditures. The Industrial Sector was the next largest focus of energy expenditures, accounting for approximately 26% of total expenditures, followed by the Residential and Commercial sectors. In terms of commodity-based expenditures, electricity represented one-third of all energy expenditures in 2009. Gasoline was the next largest component of energy expenditures with 30% of the total, followed by purchases connected to Diesel, coal, and natural gas consumption.

Consumption

For matters relating to energy consumption in Kentucky, data are divided between the usage of fuels (or energy resources) and the energy requirements of specific economic sectors. In 2009, the Commonwealth consumed 1.8 Quadrillion BTU of energy, ranking Kentucky 18th highest in total energy consumption (8th highest in total energy consumption per capita). This amount represented a 5% decline in total, statewide energy consumption compared with 2008.

Fuel usage in the Commonwealth in 2009 was led by coal consumption, which contributed to 49% of Kentucky's energy requirements. This usage was focused almost exclusively in the Electric Power Sector, with a small amount of coal consumption based in the Industrial Sector. The second largest source of energy consumption was petroleum (and its associated products) with 36% of total consumption, and was divided between the Transportation Sector and industrial processes. The remaining 15% of energy consumption for the Commonwealth, divided by energy commodity or resource, was fulfilled by natural gas, biomass, and other renewable resources in 2009.

From an economic perspective, the Industrial Sector of Kentucky was by far the largest consumer of energy in 2009, accounting for approximately 43% of total energy consumption. Compared across States, the proportional size of Kentucky's Industrial Sector is notably larger than the national average,

and is reflective of the importance of industry to the economy of the Commonwealth. The substantial energy demands of Kentucky's Industrial Sector can be linked to energy-intensive firms and operations such as steel, aluminum, and automotive manufacturing located within the Commonwealth. The Transportation Sector was the next largest consumer of energy, accounting for 25% of total energy consumption. The remaining balance of energy consumption in Kentucky in 2009 was divided between the Residential and Commercial sectors (in order of consumption).

Production

Energy production within the Commonwealth of Kentucky involves both the extraction of fossil fuels and collection of renewable energy resources, and has been historically dominated by coal production. In 2009, the Commonwealth produced 2.8 Quadrillion BTU of energy, making Kentucky a net exporter of energy for the year. This amount represented a 10% decrease in total energy production compared with 2008, yet still qualified Kentucky as the fifth largest energy producer in the United States. Of this amount, coal accounted for 93% of all energy production in Kentucky in 2009, and positioned Kentucky as the nation's third largest producer of coal. Natural gas extraction constituted 4% of energy production, while combined renewable energy resources comprised 2% of total energy production in the Commonwealth. Additionally, Kentucky produced 2.47 Million Barrels of crude oil in 2009 (though this commodity reflected less than 1% of total energy production).

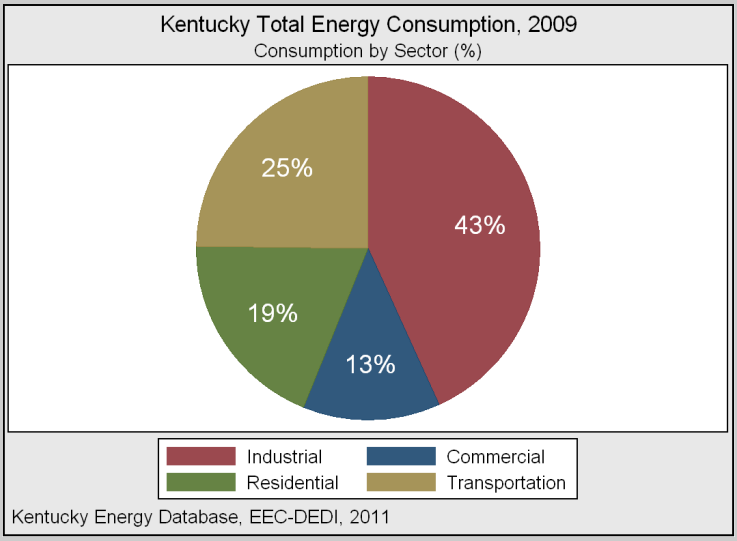
Electricity Generation

The Electric Power Sector, profoundly influential in the demand and consumption of energy supplies as well as economic activity, consumed 0.96 Quadrillion BTU of energy in 2009 while generating 90,630 Gigawatt-hours of electricity. Representing a 7% decrease in electricity generation compared with the previous year, the vast majority (92%) of this electricity generation was fueled by the combustion of coal. Hydroelectric power was the next largest fuel source for electricity production, contributing to 4% of total generation. Combustion of petroleum products, natural gas, wood products, and biomass comprised the remaining 4% of electricity generation in Kentucky in 2009. Additionally, the average price for electricity across economic sectors in Kentucky through 2010 was 6.75 cents per kilowatt-hour. Reflecting a 4% increase in the average price of electricity from 2009, this multi-sector weighted average nonetheless gave the Commonwealth the fourth lowest price of electricity in the Nation. However, the price of electricity varies widely across economic sectors and geography.

Electricity Demand

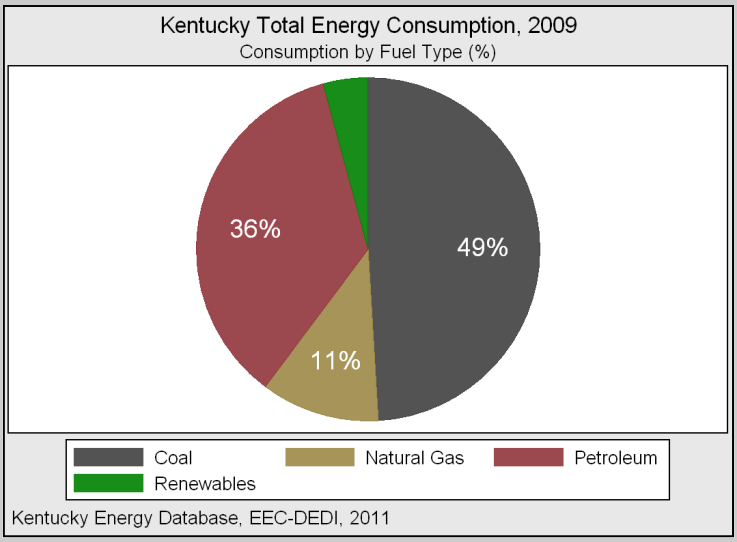
Demand for electricity in 2010 was led by the Industrial Sector, which accounted for approximately half of total electricity consumption. In a national context, the Industrial Sector's significance in the consumption of electricity is much greater in Kentucky than in most other states. An average national electricity portfolio apportions just 25% of total electricity use to the Industrial Sector, which proportionally would meet only half of Kentucky's industrial requirements. The Residential Sector was the next largest consumer of electricity, registering nearly 30% of total consumption and ranking Kentucky 6th nationally in terms of residential electricity consumption per capita. The Commercial Sector consumed the remaining 21% of electricity in 2010.

Executive Summary



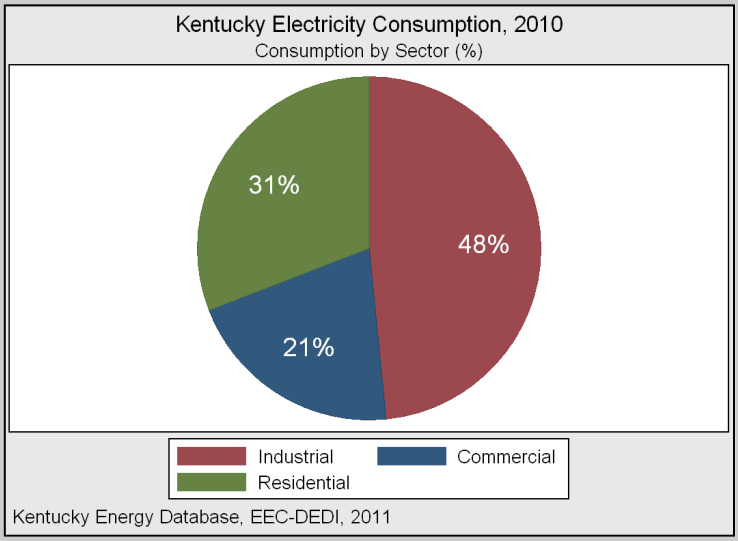
Energy Consumption by Sector

In 2009, the Industrial Sector was the largest consumer of energy in Kentucky. The location of heavy industry operations, such as steel and aluminum production, and automotive manufacturing accounted for the significance and energy requirements of the Industrial Sector in Kentucky. The Transportation Sector was the next largest consumer of energy.



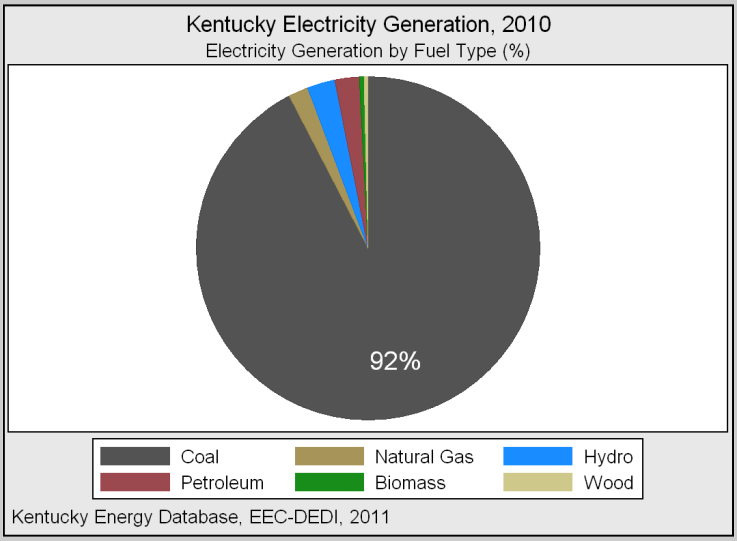
Energy Consumption by Fuel Type

In 2009, coal was the largest fuel source for energy consumption in Kentucky. The predominance of coal in sourcing energy consumption was linked to the generation of electricity and manufacturing processes in the Commonwealth. Petroleum products (gasoline, diesel, etc.) were the next largest sources of energy consumption in 2009.



Electricity Consumption by Sector

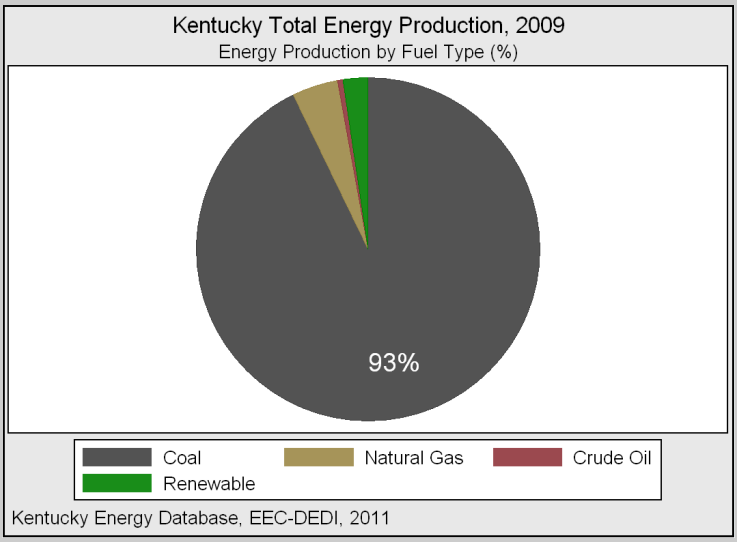
In 2010, the Industrial Sector was the largest consumer of electricity in Kentucky. Again, the location of heavy industry operations, such as steel and aluminum production, and automotive manufacturing accounted for the electricity requirements of the Industrial Sector in Kentucky. The Residential Sector was the next largest consumer of electricity in 2010.



Electricity Generation by Fuel Type

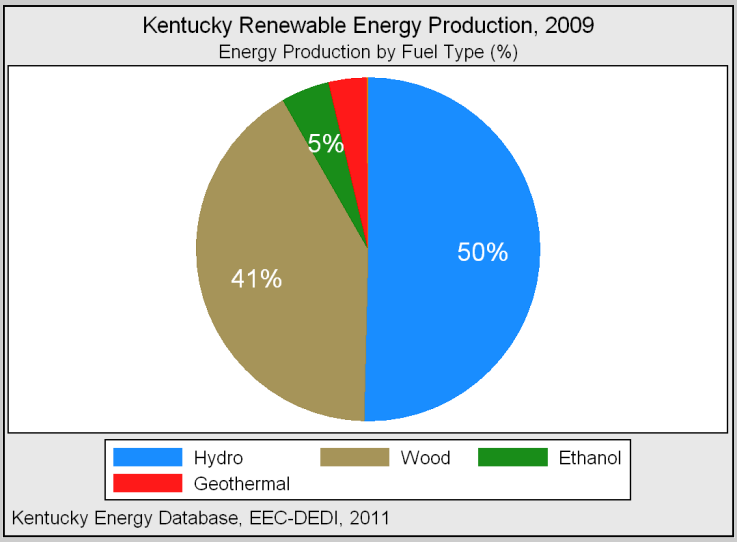
In 2010, coal combustion accounted for the super-majority of electricity generated within Kentucky. Additional base-load electricity generation was supplied through hydro power, wood, and biomass resources. Peak power requirements were predominantly met through the combustion of natural gas and petroleum products.

Executive Summary



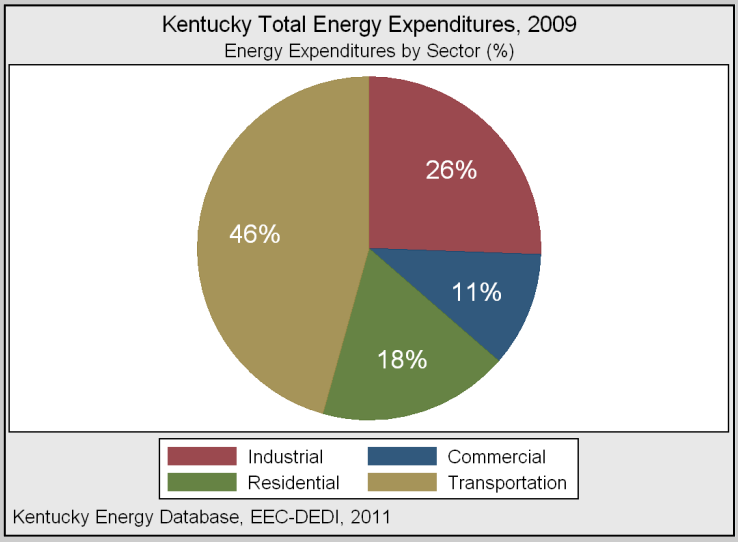
Energy Production by Fuel Type

In 2009, coal accounted for the super-majority of energy production within Kentucky. Natural gas and renewable resources were the next largest components of energy production. Additionally, the Commonwealth produced approximately 2.47 Million Barrels of crude oil in 2009.



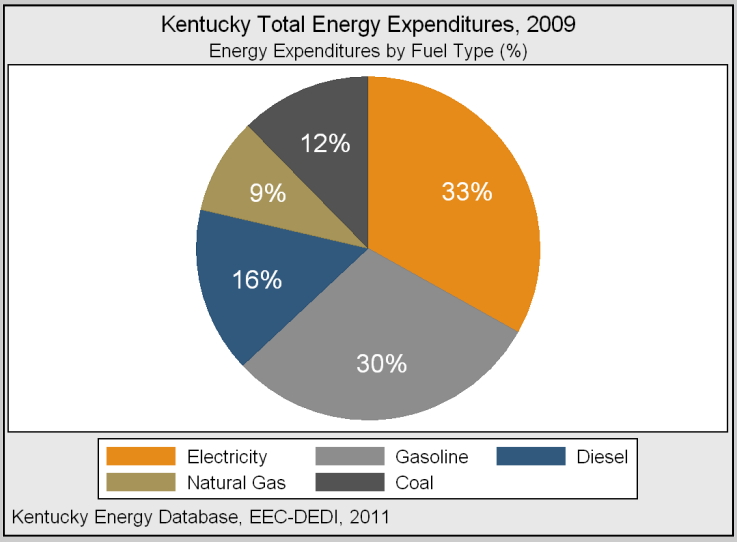
Renewable Energy Production

In 2009, renewable resources accounted for approximately 2% of total energy production within Kentucky. Of this amount, hydroelectric power accounted for half of renewable energy production, followed by wood products, fuel ethanol, and geothermal energy.



Energy Expenditures by Sector

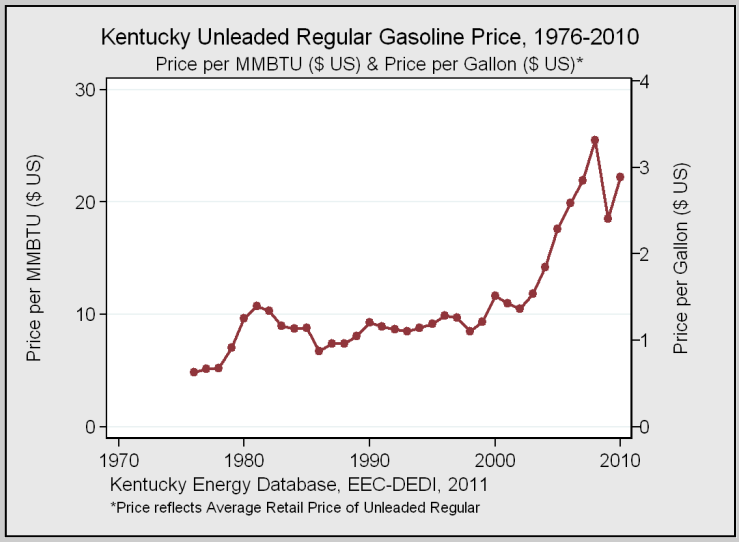
In 2009, the Transportation Sector accounted for nearly half of total energy expenditures in Kentucky. The Industrial Sector was the next largest concentration of expenditures, accounting for more than a quarter of total energy expenditures. The Residential Sector and the Commercial Sector comprised the remainder of total energy expenditures.



Energy Expenditures by Fuel Type

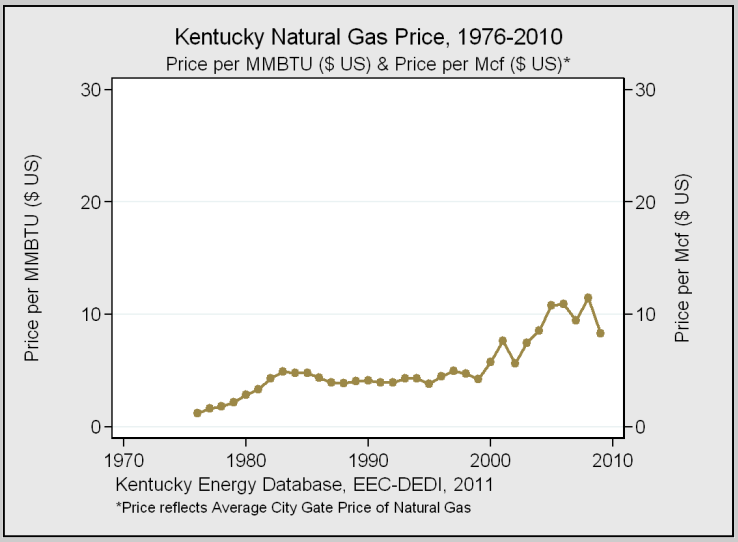
In 2009, electricity accounted for approximately one third of total energy expenditures in Kentucky. Gasoline was the next largest focus of expenditures with 30% of total energy expenditures. Diesel, coal, and natural gas constituted the remainder of energy expenditures in relatively equal proportions.

Kentucky Commodity Prices



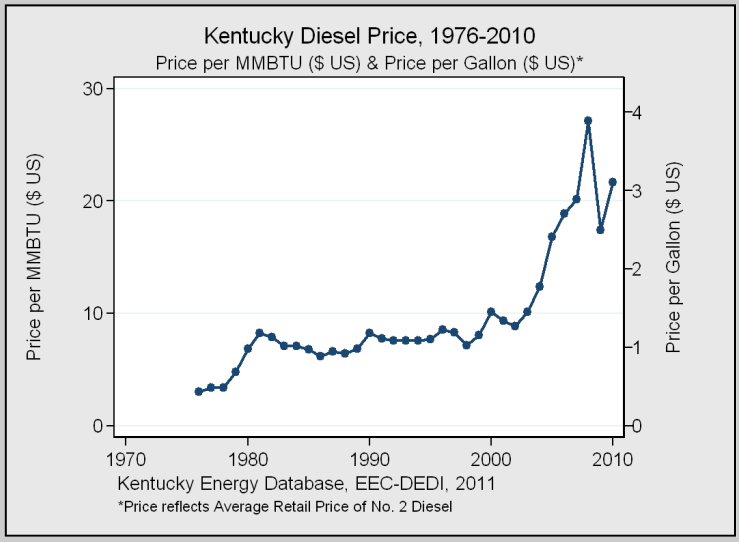
Fuel Type	($US)/MMBTU	($US)/Gallon
Gasoline	22.19	2.75

The average price of gasoline in Kentucky in 2010 was $2.75 per gallon. This represented a 17% increase in the price of gasoline compared with 2009, and was measured by the average retail sales price of gasoline.



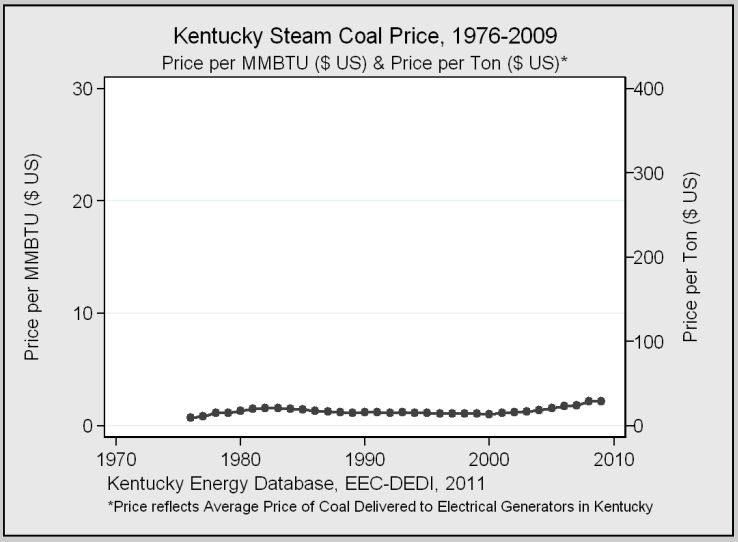
Fuel Type	($US)/MMBTU	($US)/Mcf
Natural Gas	5.77	5.77

The average price of natural gas in Kentucky in 2010 was $5.77 per thousand cubic feet. This represented a 4% decrease in the price of natural gas compared with 2009, and was measured by the average city gate price of natural gas.



Fuel Type	($US)/MMBTU	($US)/Gallon
Diesel	21.68	2.99

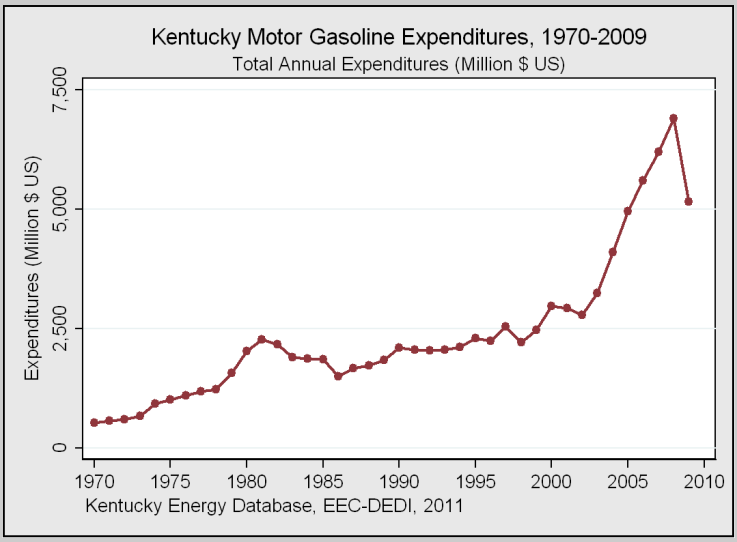
The average price of Diesel in Kentucky in 2010 was $2.99 per gallon. This represented a 23% increase in the price of Diesel compared with 2009, and was measured by the average retail sales price of Diesel.



Fuel Type	($US)/MMBTU	($US)/Ton
Coal	2.26	51.67

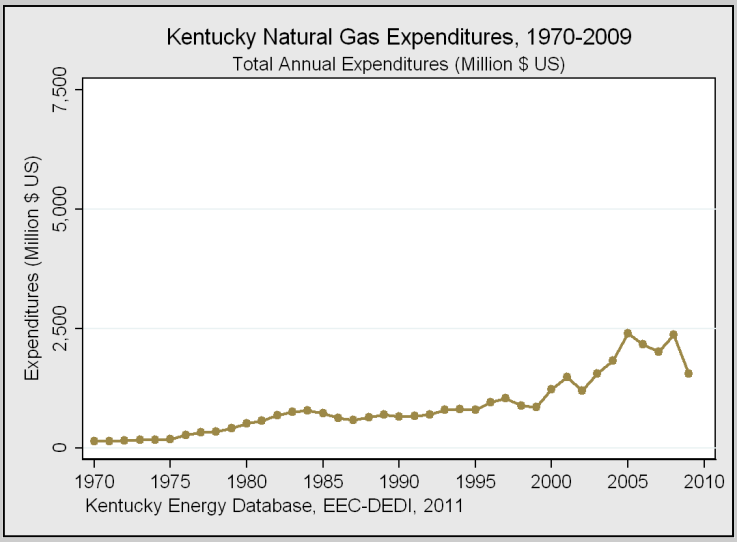
The average price of steam coal in Kentucky in 2010 was $51.67 per ton. This represented a 4% increase in the price of steam coal compared with 2009, and was measured by a weighted average of steam coal prices from the particular coal mine states of origin.

Kentucky Commodity Expenditures



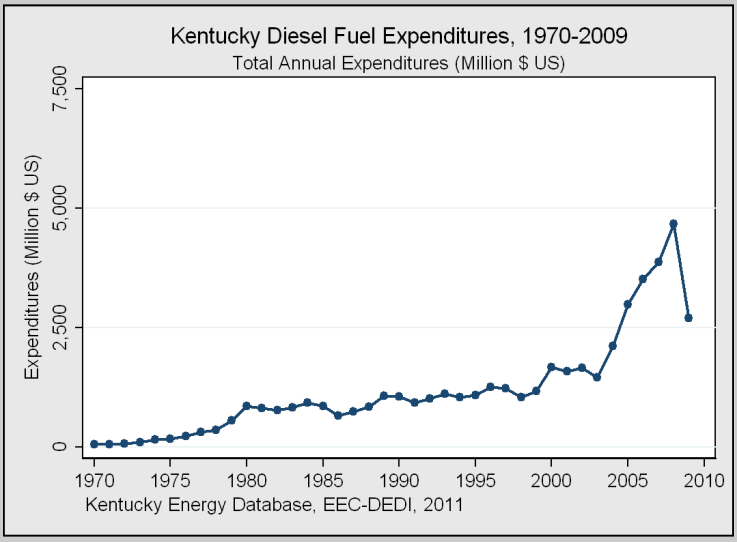
Fuel Type	(Million $ US)	% of Total
Gasoline	5,153	30%

Residents, businesses, and industries in the Commonwealth of Kentucky spent approximately $5.1 Billion on gasoline in 2009. This amount represented a 25% decrease in gasoline expenditures compared with 2008, and accounted for 30% of total energy expenditures in the State.



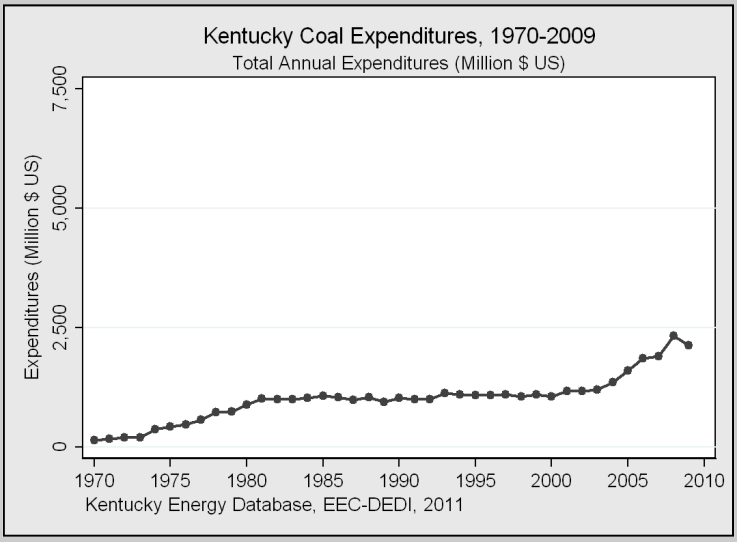
Fuel Type	(Million $ US)	% of Total
Natural Gas	1,560	9%

Residents, businesses, and industries in the Commonwealth of Kentucky spent approximately $1.5 Billion on natural gas in 2009. This amount represented a 34% decrease in natural gas expenditures compared with 2008, and accounted for 9% of total energy expenditures in the State.



Fuel Type	(Million $ US)	% of Total
Diesel	2,697	16%

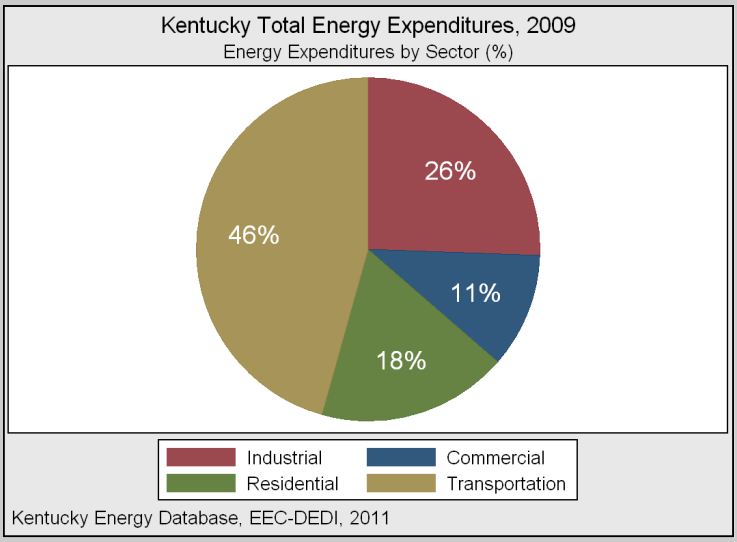
Residents, businesses, and industries in the Commonwealth of Kentucky spent approximately $2.7 Billion on Diesel in 2009. This amount represented a 42% decrease in Diesel expenditures compared with 2008, and accounted for 16% of total energy expenditures in the State.

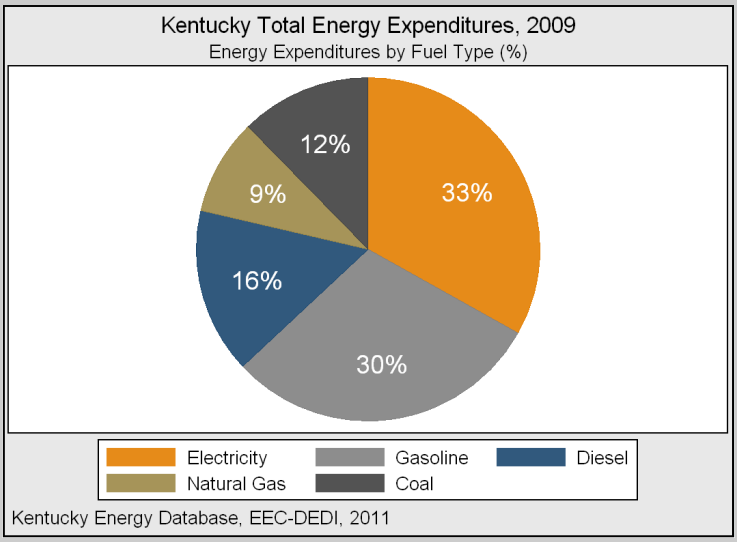


Fuel Type	(Million $ US)	% of Total
Coal	2,123	12%

Electric utilities, municipalities, public institutions, and industries in the Commonwealth of Kentucky spent approximately $2.1 Billion on coal in 2009. This amount represented an 8% decrease in coal expenditures compared with 2008, and accounted for 12% of total energy expenditures in the State.

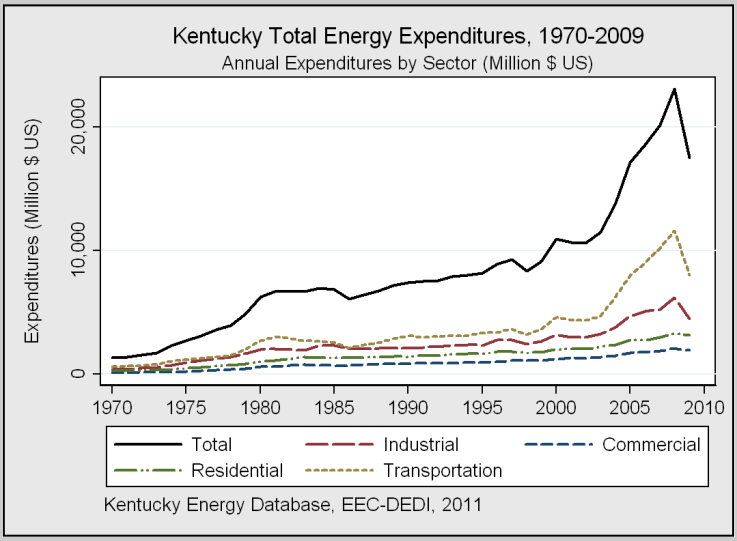
Kentucky Energy Expenditures

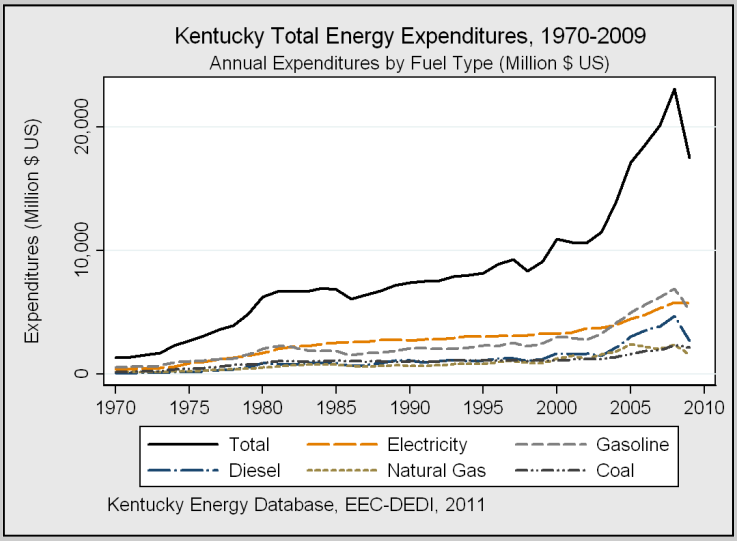




Sector	Million ($ US)	Percentage
Total	17,477	100%
Transportation	7,979	46%
Industrial	4,471	26%
Residential	3,140	18%
Commercial	1,887	11%

Fuel Type	Million ($ US)	Percentage
Total	17,477	100%
Electricity	5,713	33%
Gasoline	5,153	30%
Diesel	2,697	16%
Coal	2,123	12%
Natural Gas	1,560	6%

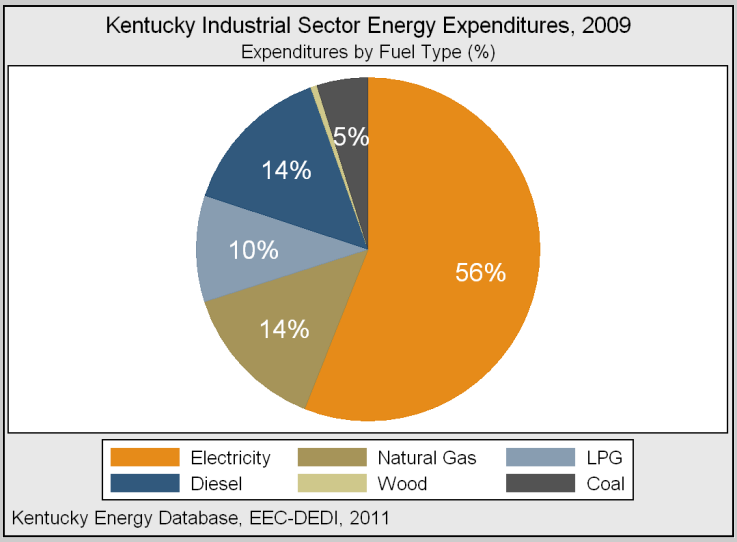


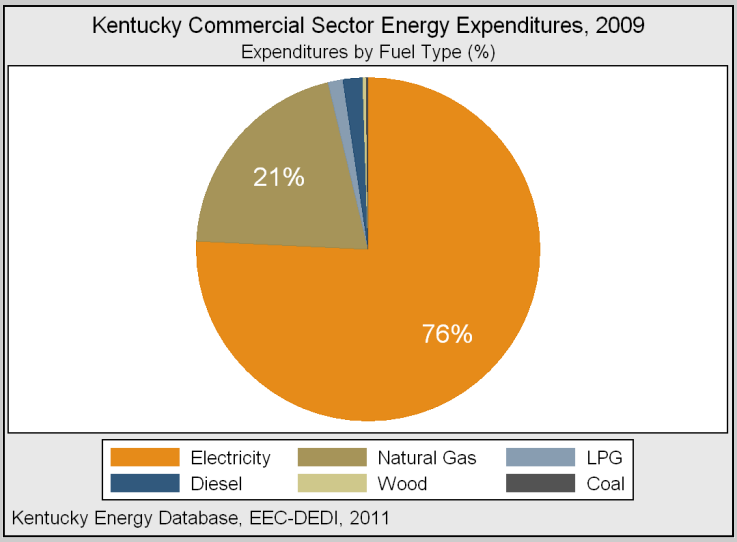


In 2009, citizens, institutions, and firms spent over $17.4 Billion on energy commodities and energy consumption in Kentucky. This amount reflected a 24% decrease in total energy expenditures compared with 2008. Of this total, the Transportation Sector accounted for nearly half of energy expenditures, followed by the Industrial Sector with more than a quarter of total energy expenditures. The Residential Sector and Commercial Sector accounted for the remaining 29% of total energy expenditures in 2009.

In 2009, citizens, institutions, and firms spent over $17.4 Billion on energy commodities and energy consumption in Kentucky. This amount reflected a 24% decrease in total energy expenditures compared with 2008. Electricity alone accounted for one third of total energy expenditures. Combined, gasoline and Diesel accounted for nearly half of total energy expenditures. Coal, natural gas, and other petroleum products accounted for the remainder of total energy expenditures in 2009.

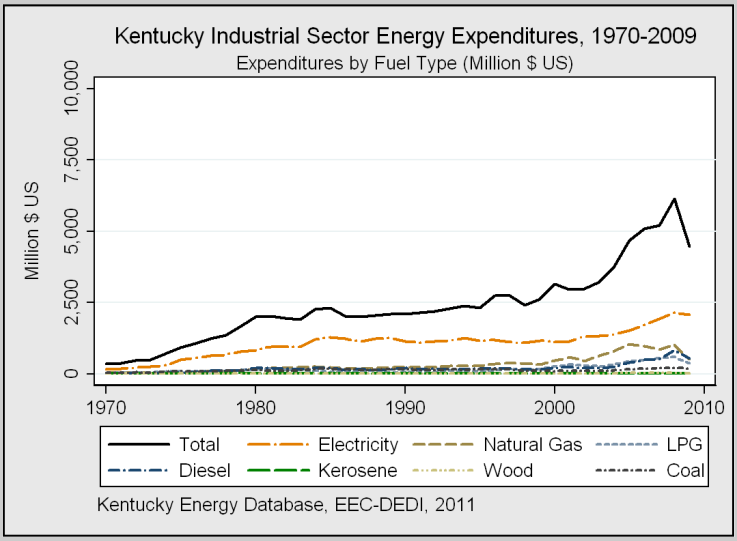
Kentucky Energy Expenditures

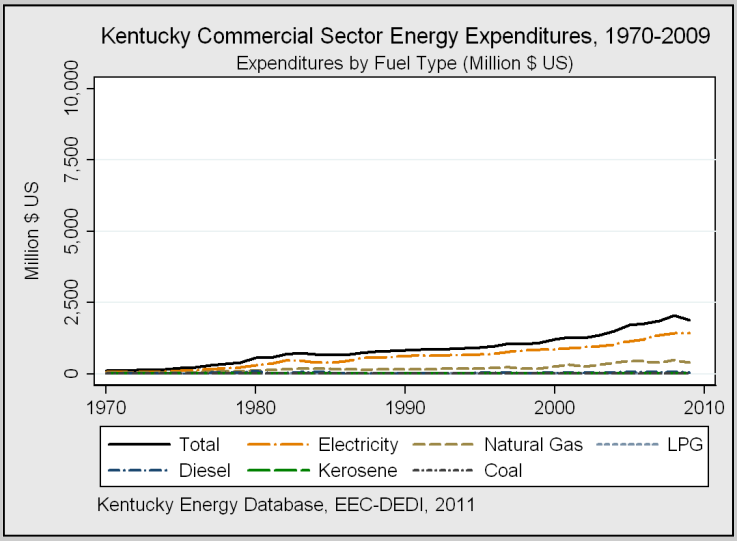




Sector	Million ($ US)	Percentage
Total	4,471	100%
Electricity	2,066	56%
Diesel	534	14%
Natural Gas	517	14%
Liquid Propane Gas	369	10%
Coal	178	5%

Fuel Type	Million ($ US)	Percentage
Total	1,887	100%
Electricity	1,426	76%
Natural Gas	386	21%
Diesel	35	1%
Liquid Propane Gas	26	1%
Wood	5	>1%

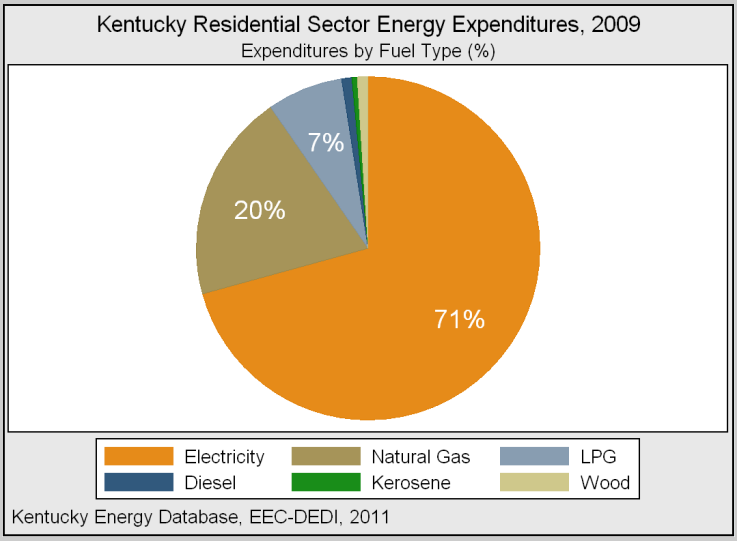


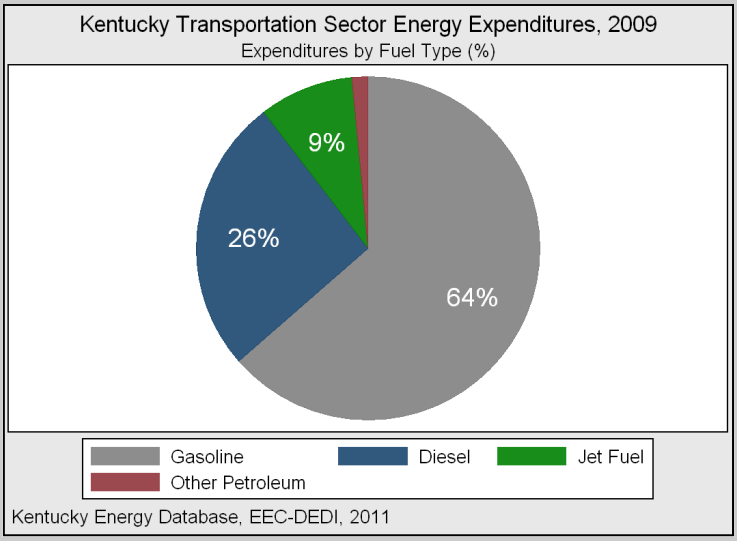


In 2009, firms of the Industrial Sector in Kentucky spent over $4.4 Billion on energy commodities and energy consumption. This amount reflected a 27% decrease in industrial energy expenditures compared with 2008. Electricity was the largest component of expenditures, accounting for over half of industrial energy expenditures. Natural gas and Diesel accounted evenly for 28% of industrial energy expenditures. Propane, coal, and wood products accounted for the remainder of industrial energy expenditures in 2009.

In 2009, firms of the Commercial Sector in Kentucky spent over $1.8 Billion on energy commodities and energy consumption. This amount reflected an 8% decrease in commercial energy expenditures compared with 2008. Electricity accounted for three quarters of commercial energy expenditures in 2009. Natural gas accounted for 21% of commercial energy expenditures. Diesel, propane, and wood products comprised the remainder of commercial energy expenditures in 2009.

Kentucky Energy Expenditures

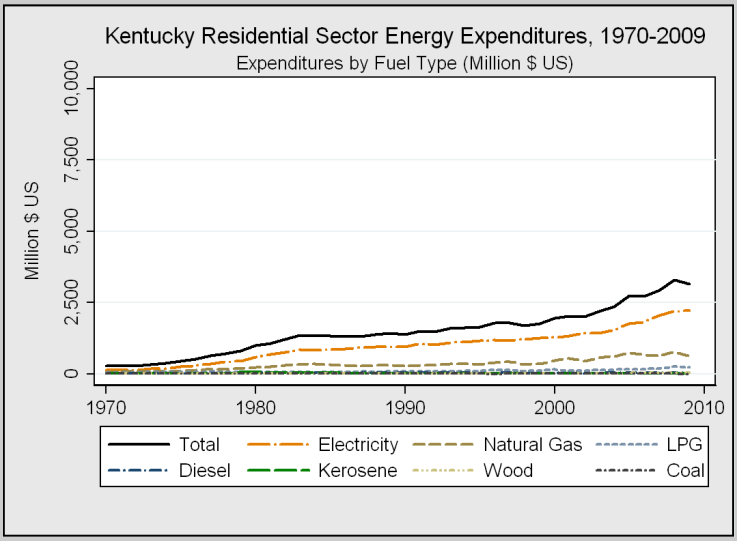


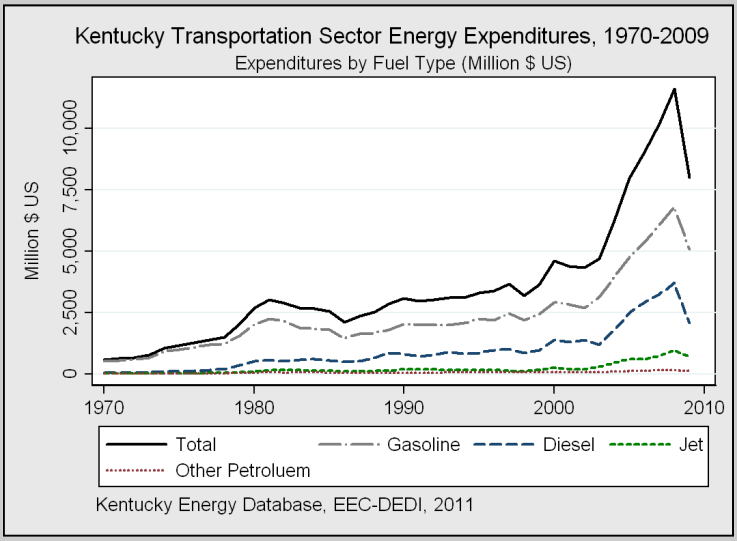


Sector	Million ($ US)	Percentage
Total	3,140	100%
Electricity	2,220	71%
Natural Gas	617	20%
Liquid Propane Gas	223	7%
Wood	32	1%
Diesel	31	1%

Fuel Type	Million ($ US)	Percentage
Total	7,979	100%
Gasoline	5,071	64%
Diesel	2,073	26%
Jet Fuel	711	9%
Other Petroleum*	119	1%

*Other Petroleum includes lubricants and products used in road construction.

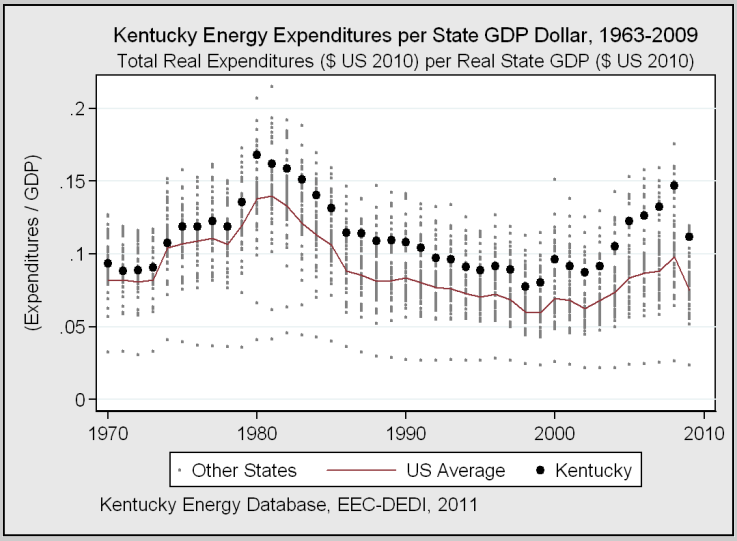




In 2009, the Residential Sector in Kentucky spent over $3.1 Billion on energy commodities and energy consumption. This amount reflected a 4% decrease in residential energy expenditures compared with 2008. Electricity accounted for 71% of residential energy expenditures in 2009, followed by natural gas with 20% of residential energy expenditures. Propane, Diesel, and wood products comprised the remainder of residential energy expenditures in 2009.

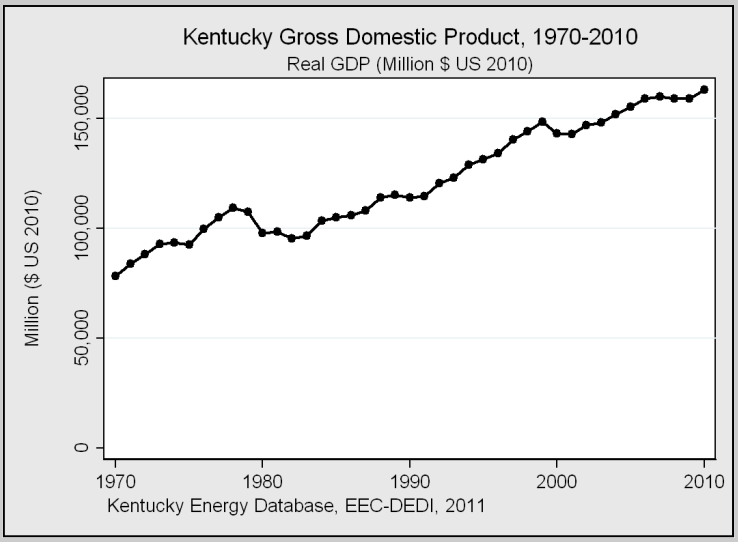
In 2009, the Transportation Sector in Kentucky spent over $7.9 Billion on energy commodities. This amount reflected a 31% decrease in transportation energy expenditures compared with 2008. Gasoline was the largest focus of expenditures, accounting for 64% of transportation energy expenditures in 2009. Diesel was the next largest concentration of expenditures, representing 26% of transportation expenditures. Jet fuels, along with other petroleum products, comprised the remainder of transportation expenditures.

Kentucky Energy Expenditures



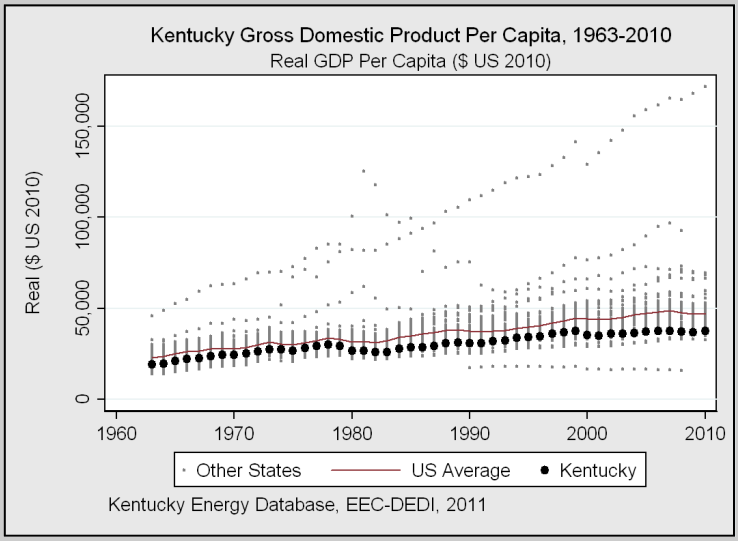
Energy Expenditures & GDP

In 2009, citizens, institutions, and firms in Kentucky on average required $0.11 of energy commodities and/or energy consumption to produce $1 of State Gross Domestic Product. This metric of total energy expenditures to State Gross Domestic Product ranks Kentucky high nationally in terms of energy expenses to state economic output.



Gross Domestic Product

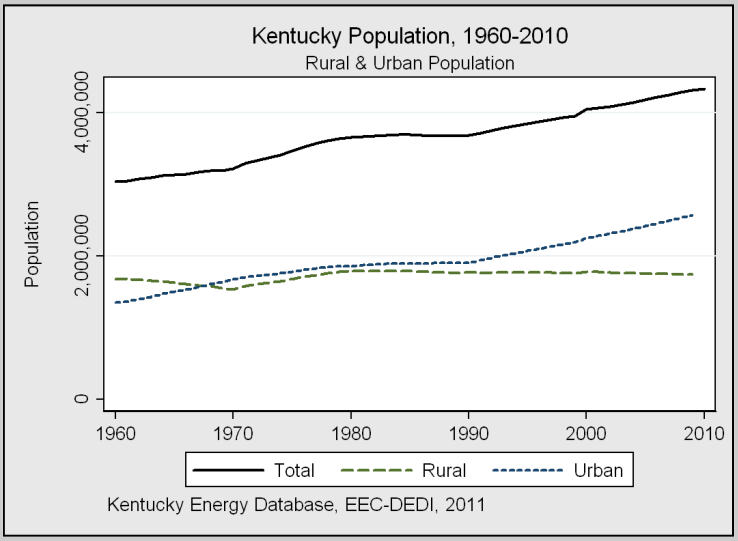
In 2010, the Gross Domestic Product of Kentucky was $163 Billion. This amount reflected a 3% increase in State GDP compared with 2009. Since 1970, the State GDP of Kentucky has increased by 108%, with a constant annual growth rate of 1.8%. This analysis utilizes nominal GDP data adjusted for inflation and chained to year 2010 values.



Gross Domestic Product per Capita

In 2010, the State Gross Domestic Product per capita in Kentucky was $37,625. This per capita income level places Kentucky below the national average of $47,140.

This analysis utilizes nominal income data adjusted for inflation and chained to year 2010 values.



Rural & Urban Population

In 2010, the population of Kentucky was estimated to be around 4.33 million. This estimate reflects a 7% increase in Kentucky's population since 2000. Since 1990, Kentucky has witnessed a consistent trend of increasing urbanization and urban population growth.

Energy Consumption

Accounting:

For the purposes of standardized measurement and accounting, energy consumption within the Commonwealth is quantified by converting all supplies of energy into a British Thermal Unit (BTU) value. Though more widely used physical measurements may be included to reflect usage of a particular energy resource, this conversion is necessary to form a balanced comparison of consumption across energy supplies. Subsequent to this conversion, energy consumption is then measured in terms of fuel type and/or by economic sector. Measurements of energy consumption by fuel type (coal, natural gas, solar, etc.) can help explain which resource(s) is enabling activities associated with energy consumption. Measurements of energy consumption by economic sector (Industrial, Commercial, Residential, Transportation, Electric Power) can help explain where and how energy resources are being utilized to enable activities associated with energy consumption.

An important distinction must be made between accounting for "primary" energy consumption and "end-use" energy consumption. Primary energy consumption reflects the total, potential BTU value of all energy resources consumed within the Commonwealth within a given period. Therefore, primary energy consumption should be understood as total energy consumption. End-use energy consumption reflects the ultimate, functional use of energy within the Commonwealth, subtracting losses due to thermodynamic processes, transmission losses, or energy inefficiencies. End-use energy consumption should be understood as the quantification of how energy is ultimately used within an economic sector.* End-use energy consumption may also be described as the total net consumption of energy by economic sector. Additionally, energy consumption data is provided for the most recent year of observation, usually 2009.

Summary:

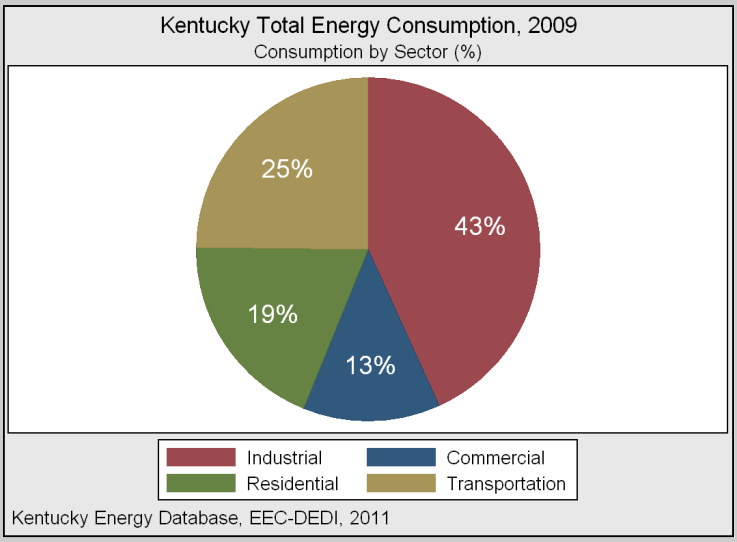
In 2009, the Commonwealth of Kentucky consumed 1.8 Quadrillion BTU of energy. This amount reflected a 5% decline in total statewide energy consumption, compared with 2008. Viewed nationally, Kentucky was the 18th highest consumer of energy versus all other states, and ranked 8th highest in terms of total energy consumption per capita. Overall, energy consumption in Kentucky in 2009 was dominated by the use of coal and the energy requirements of the Industrial Sector.

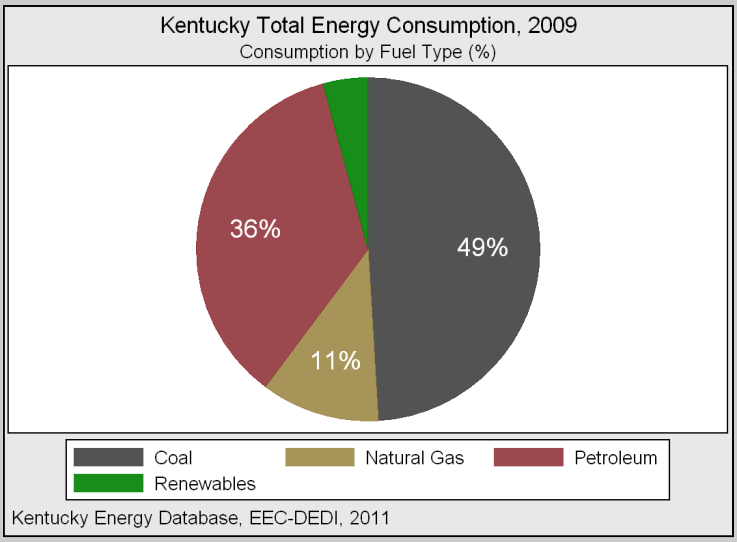
In terms of energy consumption by fuel type, coal remained Kentucky's single largest source of energy, supplying 49% of the Commonwealth's energy requirements in 2009. The sustained position and importance of coal can be explained by predominant coal-fired electricity generation and industrial coal usage within the Commonwealth. Petroleum products, utilized mainly for transportation and industry, were the second largest source of energy consumption (36%). Natural gas, applied in industrial processes, home heating, and electricity generation constituted 11% of total energy consumption. Renewable energy resources constituted 4% of energy consumption in 2009, and were harnessed primarily for home heating use and electricity generation.

End-use energy consumption was led by the Industrial Sector in Kentucky in 2009. Accounting for 43% of total energy consumption, this dynamic is explained by the location of numerous energy-intensive firms within the Commonwealth (such as steel production, aluminum production, and automotive manufacturing) which require substantial supplies of electricity, natural gas, petroleum products, and coal. The remainder of end-use energy consumption in Kentucky was comprised by the Transportation Sector (25%), Residential Sector (19%), and Commercial Sector (13%).

* Electricity consumption is an example of end-use energy consumption. A customer may consume 1000 BTUs of electricity but 3000 BTUs were consumed to generate and transmit that electricity.

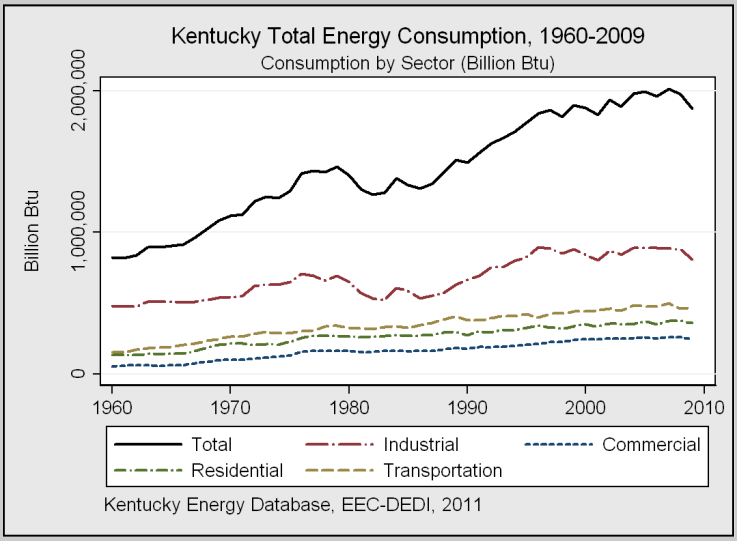
Kentucky Total Energy Consumption

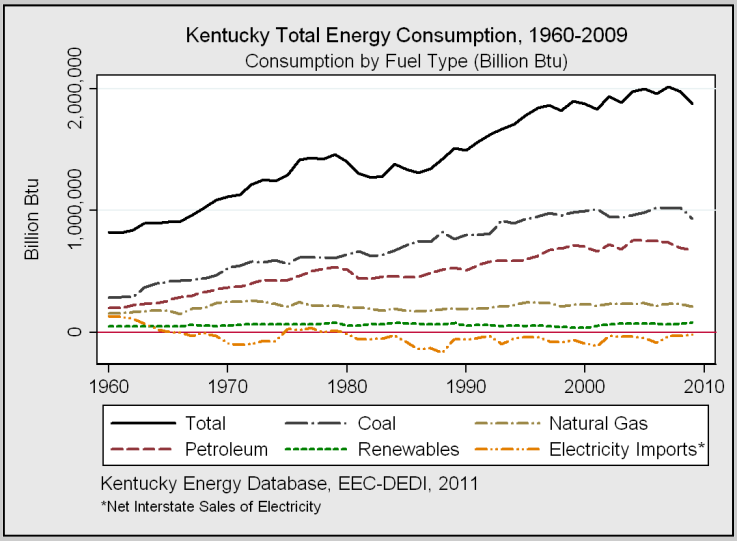




Sector	Billion BTU	Percentage
Total	1,876,629	100%
Industrial	811,058	43%
Transportation	465,189	25%
Residential	358,057	19%
Commercial	242,325	13%

Fuel Type	Billion BTU	Percentage
Total	1,876,629	100%
Coal	937,106	49%
Petroleum	680,093	36%
Natural Gas	213,970	11%
Renewables	80,125	4%
Net Electricity Imports	-17,799	-

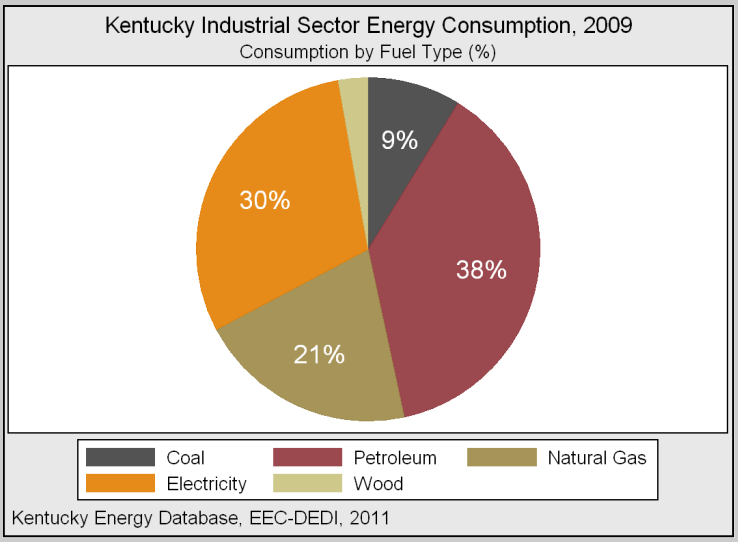


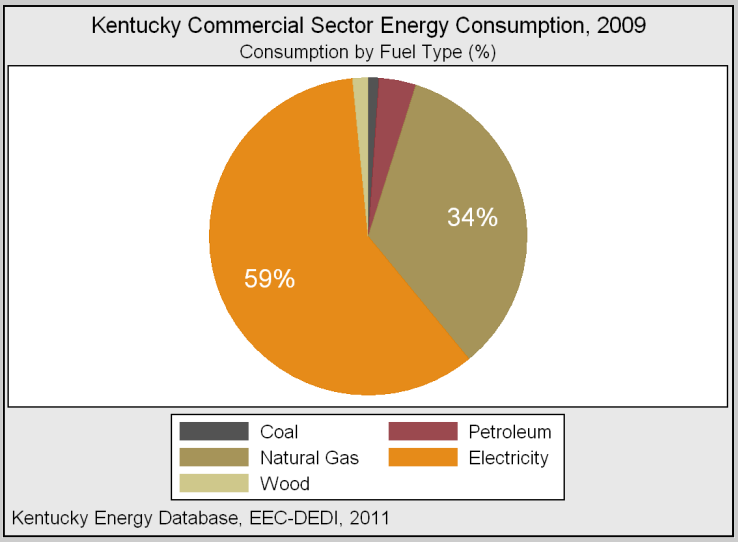


In 2009, the Commonwealth of Kentucky consumed 1.87 Quadrillion BTU of energy. This amount reflected a 5% decline in total, statewide energy consumption compared with 2008. The Industrial Sector was by far the largest consumer of energy, accounting for 43% of total energy consumption. The Transportation Sector was the next largest consumer of energy accounting for one quarter of energy consumption, followed by the Residential Sector (19%) and Commercial Sector (13%).

In 2009, coal remained Kentucky's primary energy source, providing 49% of the Commonwealth's energy requirements. Of the coal consumed, 95% was used to generate electricity. Petroleum products, utilized mainly for transportation, were the second largest source of energy consumption (34%). The remainder of energy consumption was supplied by natural gas (12%), and renewable energy sources (3%). Furthermore, Kentucky was a net exporter of electricity for the year, which registered additional energy consumption.

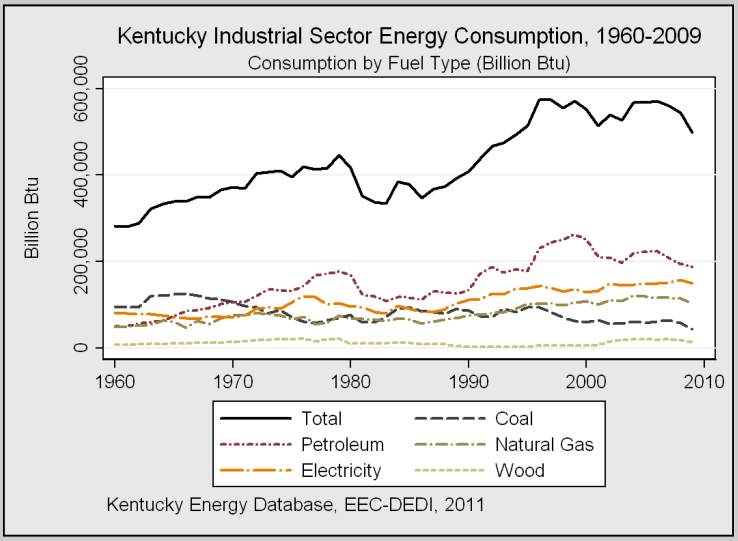
Kentucky Energy Use by Sector

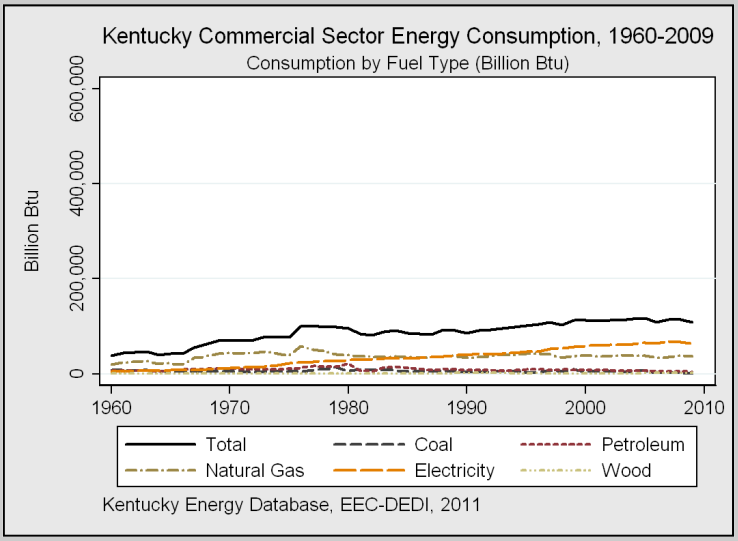




Fuel Type	Billion BTU	Percentage
Total	498,099	100%
Petroleum	187,954	38%
Electricity	148 ,722	30%
Natural Gas	102,210	21%
Coal	43,407	9%
Wood	13,824	2%

Fuel Type	Billion BTU	Percentage
Total	108,091	100%
Electricity	63,790	59%
Natural Gas	36,733	34%
Petroleum	4,040	4%
Wood	1,686	1%
Coal	1,178	1%

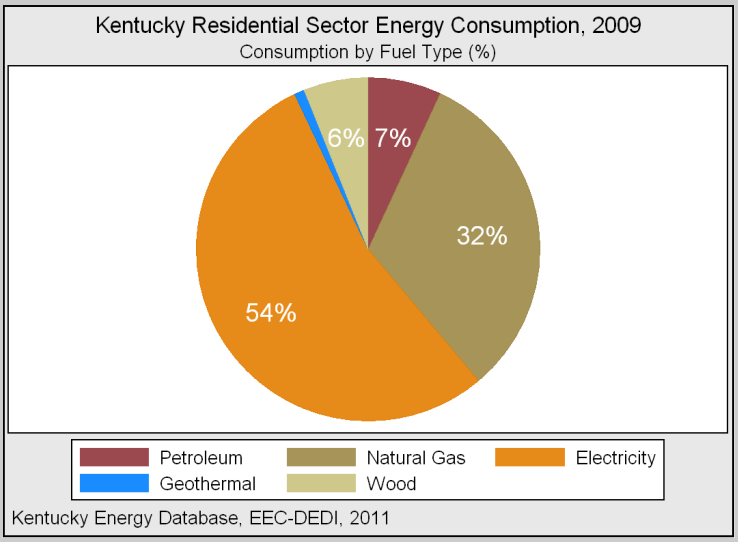


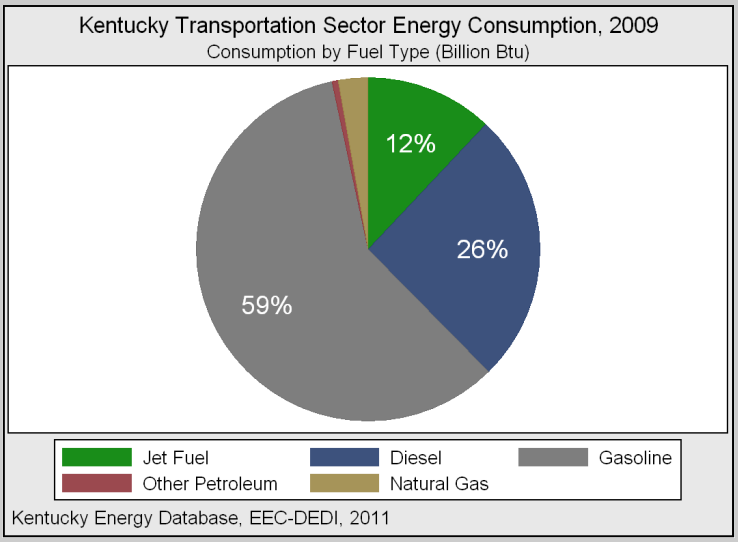


In 2009, firms of the Industrial Sector in Kentucky consumed 498,099 Billion BTU of energy. This amount reflected an 8% decrease in net industrial energy consumption compared with 2008. Petroleum products were the largest source of energy consumption, accounting for 38% of industrial energy consumption. Electricity represented 30% of industrial energy consumption, followed by natural gas (21%). Coal and wood products comprised the remaining 10% of industrial energy consumption in 2009.

In 2009, firms of the Commercial Sector in Kentucky consumed 108,091 Billion BTU of energy. This amount reflected a 6% decrease in net commercial energy consumption compared with 2008. Electricity was the largest source of energy consumption, accounting for 59% of commercial consumption in 2009. Natural gas was the next largest source of consumption, representing 34% of commercial energy consumption. Petroleum products, wood products, and coal constituted the remainder of commercial energy consumption.

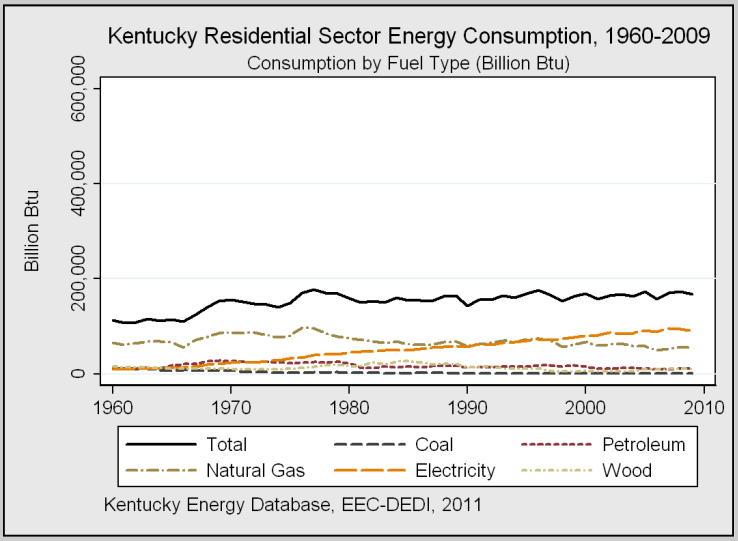
Kentucky Energy Use by Sector

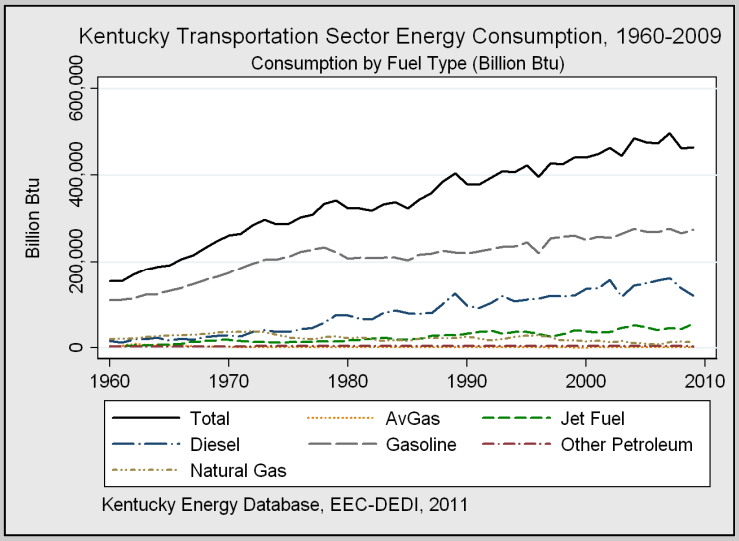




Fuel Type	Billion BTU	Percentage
Total	167,606	100%
Electricity	90,505	54%
Natural Gas	53,499	32%
Petroleum	11,586	7%
Wood	10,204	6%
Geothermal	1,590	1%

Fuel Type	Billion BTU	Percentage
Total	465,189	100%
Gasoline	274,411	59%
Diesel	119,192	26%
Jet Fuel	55,814	12%
Natural Gas*	12,925	3%
Other Petroleum	2,639	1%

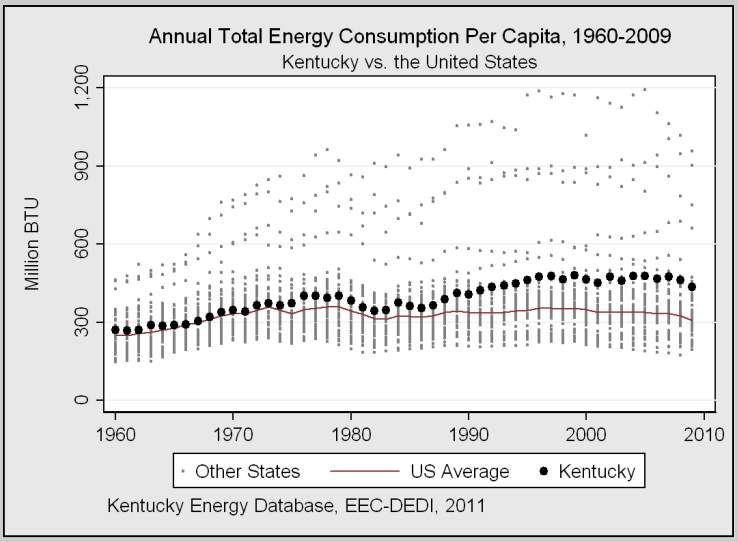




In 2009, the Residential Sector in Kentucky consumed 167,606 Billion BTU of energy. This amount reflected a 4% decrease in net residential energy consumption compared with 2008. Electricity was the largest source of energy consumption, accounting for 54% of residential consumption. Natural gas was the next largest source of energy, representing 32% of residential energy consumption. Petroleum products, wood products, and geothermal systems constituted the remainder of residential energy consumption in 2009.

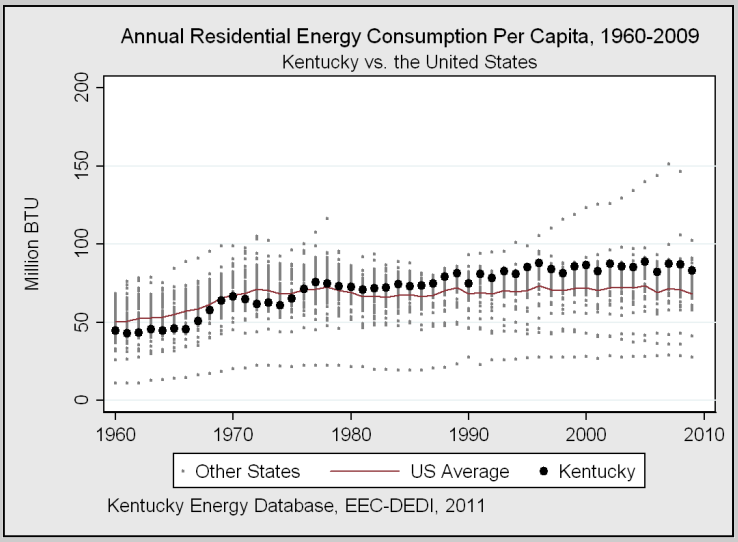
In 2009, the Transportation Sector in Kentucky consumed 465,189 Billion BTU of energy. This amount reflected a 1% increase in transportation energy consumption compared with 2008. Gasoline represented the majority of energy consumption followed by Diesel, which accounted for 26% of transportation energy consumption. The final 16% of transportation energy consumption included jet fuels, natural gas, and other petroleum products. *Natural gas consumption by the Transportation Sector in Kentucky is predominantly consumption by major, interstate gas transmission pipelines that bisect the Commonwealth.

Kentucky Energy Intensity by Sector



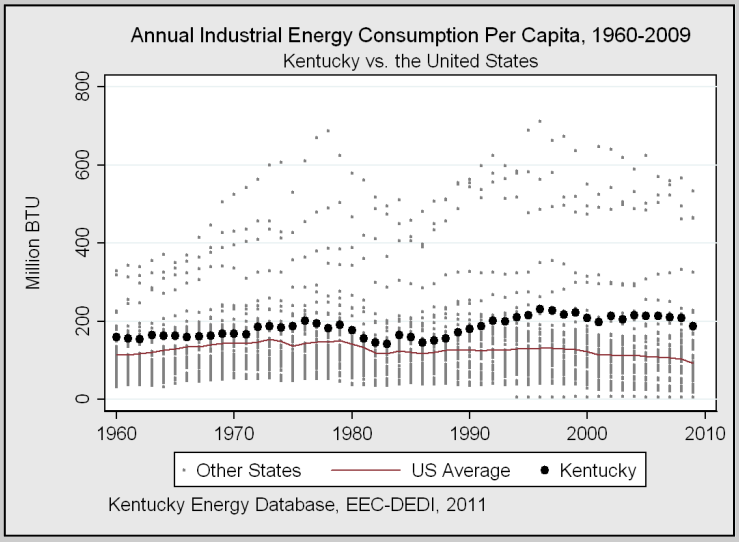
State	MMBtu per Capita	Rank
Wyoming	956	1st
Kentucky	435	8th
New York	195	50th

In 2009, Kentucky ranked 8th nationally in terms of total energy consumption per capita. Total energy consumption per capita decreased by 6% compared with 2008.



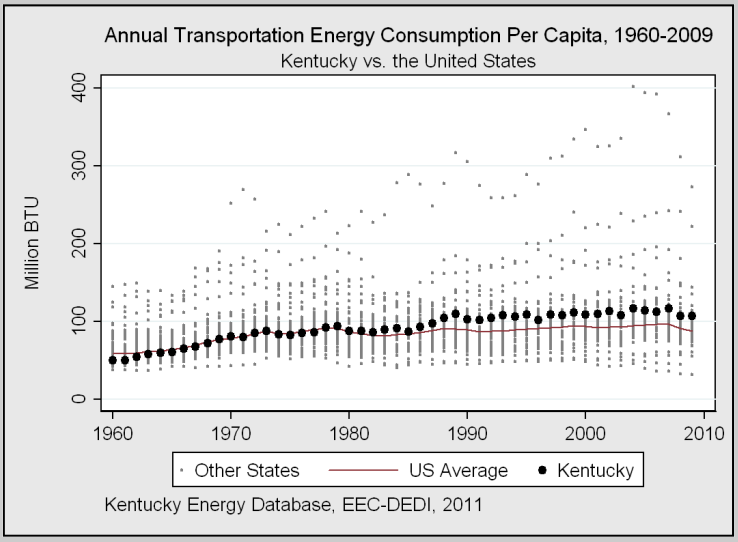
State	MMBtu per Capita	Rank
North Dakota	102	1st
Kentucky	83	9th
Hawaii	28	50th

In 2009, Kentucky ranked 9th nationally in terms of Residential energy consumption per capita. Residential energy consumption per capita decreased by 5% compared with 2008.



State	MMBtu per Capita	Rank
Wyoming	533	1st
Kentucky	188	7th
New York	19	50th

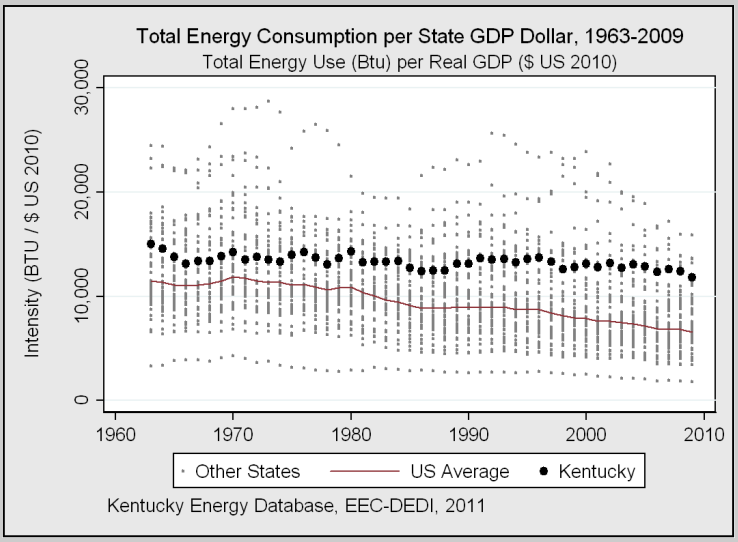
In 2009, Kentucky ranked 7th nationally in terms of Industrial Sector energy consumption per capita. Industrial energy consumption per capita decreased by 9% compared with 2008.



State	MMBtu per Capita	Rank
Alaska	273	1st
Kentucky	108	10th
New York	56	50th

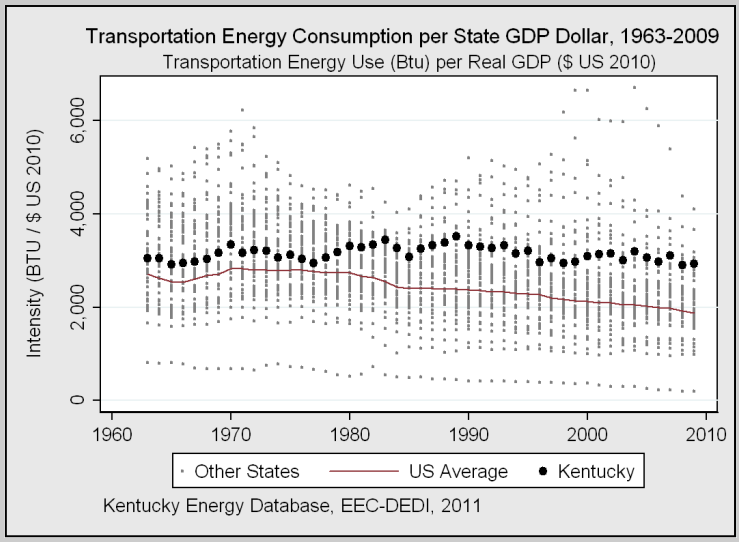
In 2009, Kentucky ranked 10th nationally in terms of Transportation Sector energy consumption per capita. Transportation energy consumption per capita increased by 1% compared with 2008.

Kentucky Energy Intensity by Sector



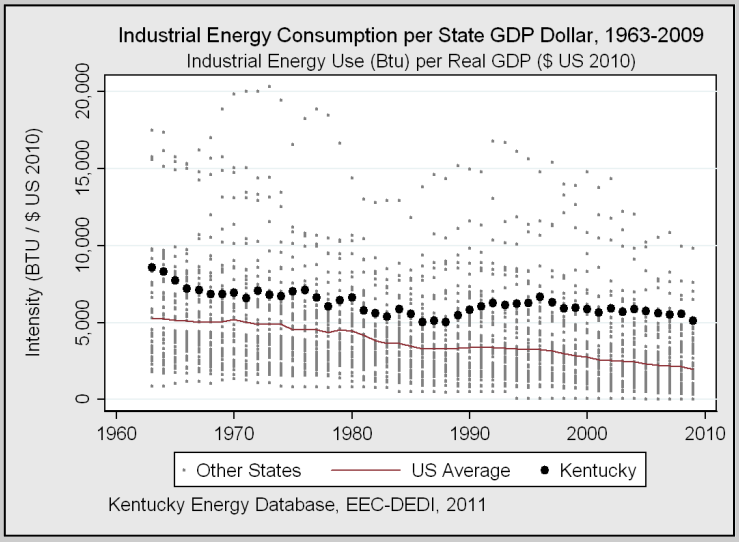
State	Btu / $ US GDP	Rank
Louisiana	15,894	1st
Kentucky	11,794	5th
Connecticut	3,411	50th

In 2009, Kentucky ranked 5th nationally in terms of total energy consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).



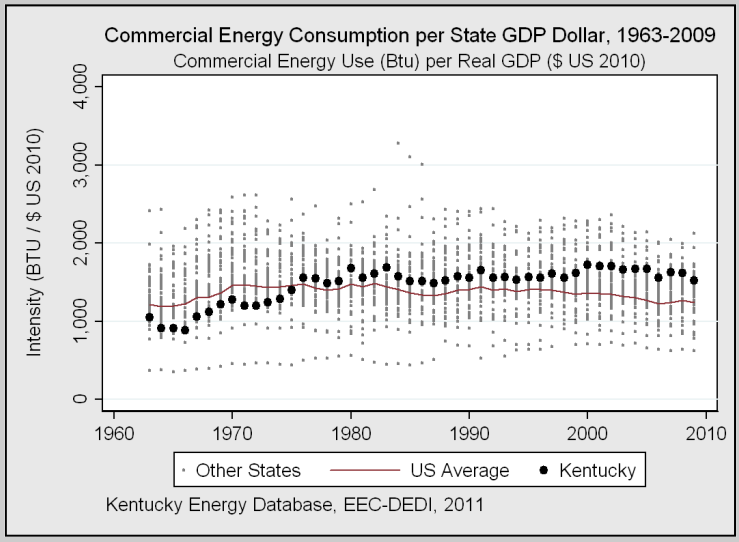
State	Btu / $ US GDP	Rank
Alaska	4,103	1st
Kentucky	2,923	5th
New York	928	50th

In 2009, Kentucky ranked 5th nationally in terms of transportation energy consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).



State	Btu / $ US GDP	Rank
Louisiana	9,817	1st
Kentucky	5,097	5th
New York	329	50th

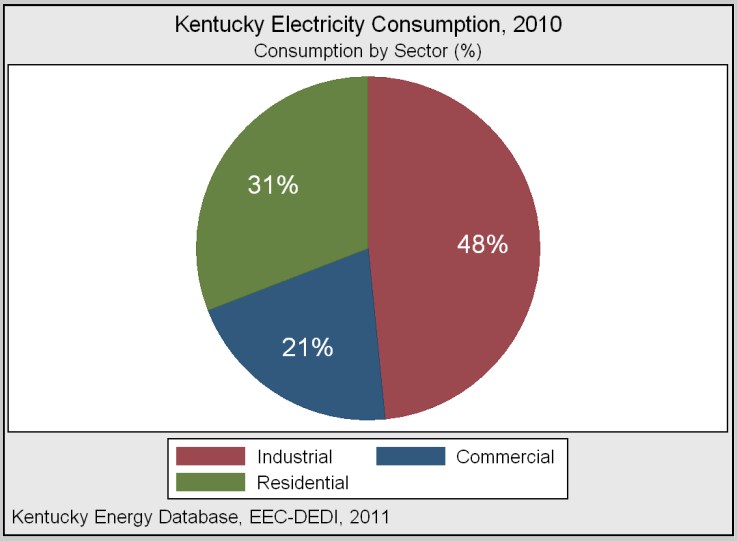
In 2009, Kentucky ranked 5th nationally in terms of industrial energy consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).

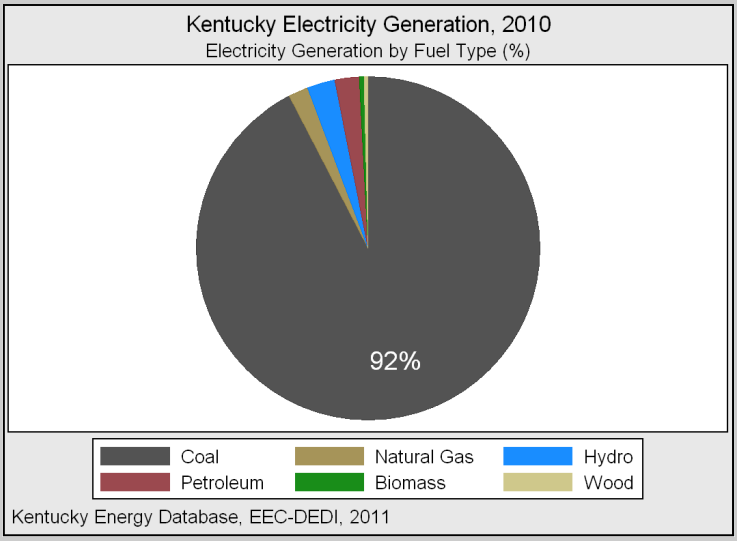


State	Btu / $ US GDP	Rank
Montana	2,124	1st
Kentucky	1,523	17th
Hawaii	623	50th

In 2009, Kentucky ranked 17th nationally in terms of commercial energy consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).

Kentucky Electricity Consumption

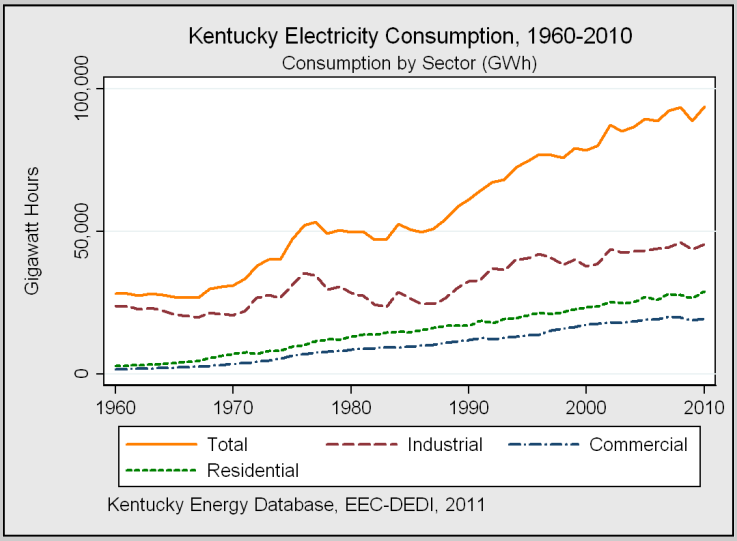


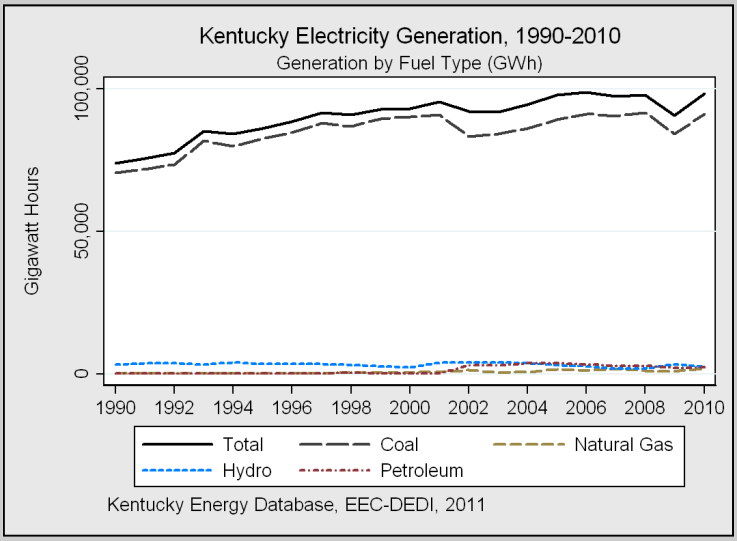


Sector	Gigawatt Hours	Percentage
Total	93,608	100%
Industrial	45,332	48%
Residential	28,887	31%
Commercial	19,389	21%

*This section includes the most recent data on electricity consumption by sector. A longer time lag exists in reporting data on electricity generation by fuel type. This lag explains the difference in reporting years between these two measurements.

Fuel Type	Gigawatt Hours	Percentage
Total	98,218	100%
Coal	91,054	92%
Hydro	2,580	3%
Petroleum	2,285	2%
Natural Gas	1,841	2%
Wood & Biomass	458	>1%

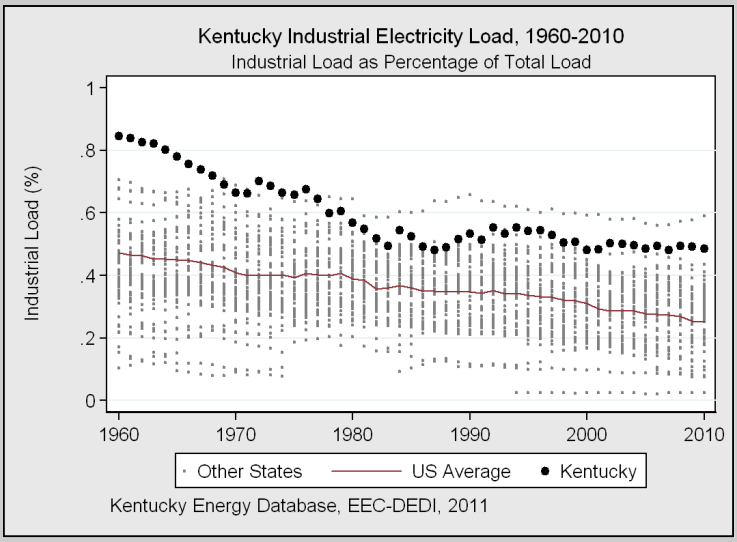




In 2010, the Commonwealth of Kentucky consumed over 93,608 Gigawatt-hours of electricity. This amount reflected a 5% increase in electricity consumption compared with 2009. The Industrial Sector of Kentucky was by far the largest consumer of electricity, accounting for nearly half of total electricity consumption. The Residential Sector was the next largest consumer of electricity, representing 31% of total consumption. The Commercial Sector constituted the remaining 21% of total electricity consumption in 2010.

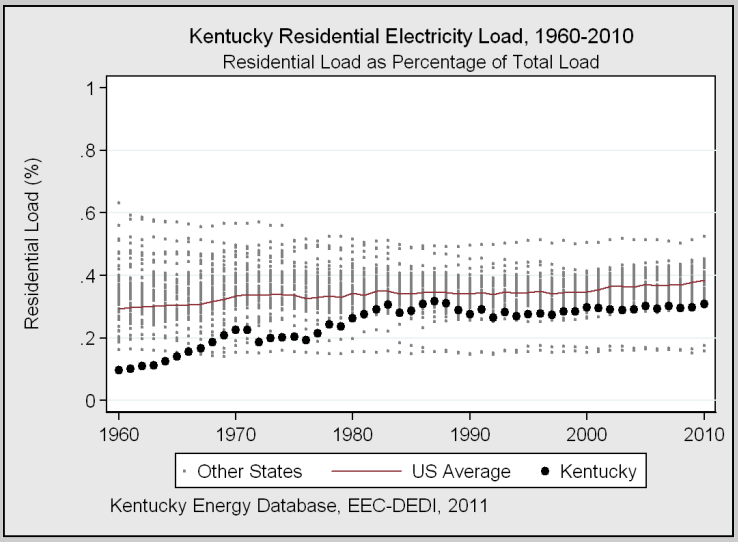
In 2010, electric power facilities in Kentucky generated over 98,218 Gigawatt-hours of electricity. Of this amount, over 92% of the electricity generated in Kentucky was derived through the combustion of coal. Hydroelectric facilities were the next largest source of electricity, supplying approximately 3% of total generation. Petroleum products and natural gas fueled the remaining 4% of electricity generation in 2010. (Wood and biomass products represented less than 1% of electricity generation in 2010).

Kentucky Electricity Consumption



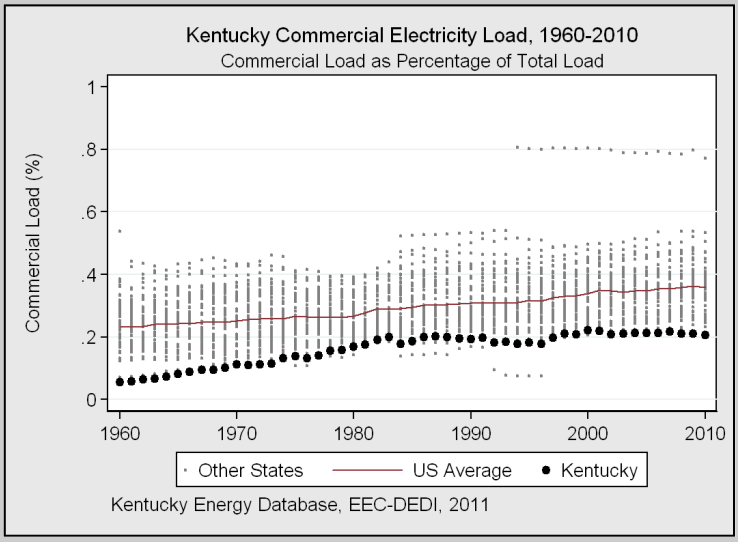
State	Industrial Load	Rank
Wyoming	60%	1st
Kentucky	48%	2nd
Florida	7%	50th

In 2010, Kentucky ranked 2nd nationally in terms of industrial electricity consumption versus total electricity consumption. The U.S. weighted average was 25% in 2010.



State	Residential Load	Rank
Florida	52%	1st
Kentucky	31%	47th
Wyoming	16%	50th

In 2010, Kentucky ranked 47th in terms of residential electricity consumption versus total electricity consumption. The U.S. weighted average was 39% in 2010.

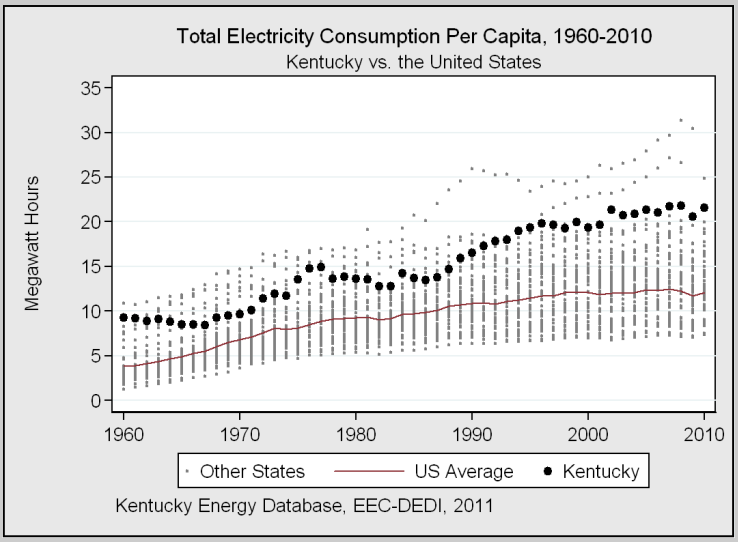


State	Commercial Load	Rank
New York	53%	1st
Montana	34%	25th
Kentucky	21%	50th

In 2010, Kentucky ranked 50th nationally in terms of commercial electricity consumption versus total electricity consumption. The U.S. weighted average was 36% in 2010.

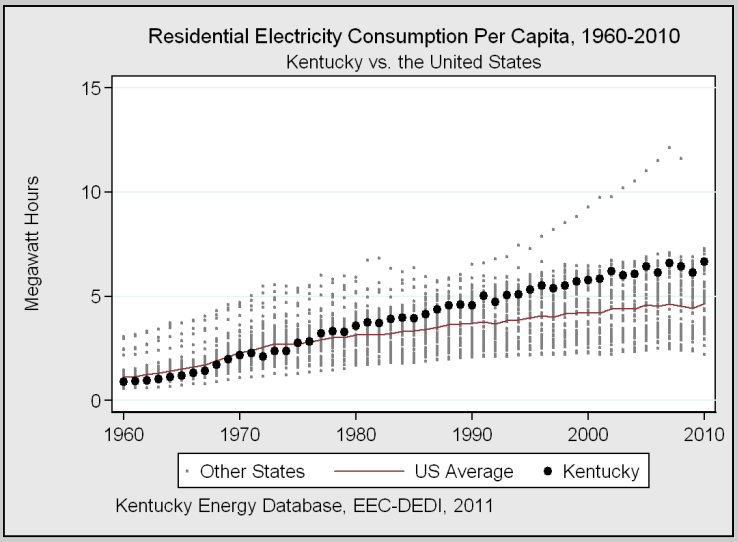
The distribution of electricity load (demand) across economic sectors in Kentucky is significantly different than most other states. Most prominently, the Industrial Sector in Kentucky consumes nearly half of all electricity consumed in the state. This proportion is second highest in the Country, double the national average for the Industrial Sector, and reflects the substantial electricity requirements of manufacturing firms in the Commonwealth. Inversely, Commercial Sector electricity demand as a portion of total demand in Kentucky was the lowest of all 50 States (including the District of Columbia) in 2010. The Residential Sector's share of electricity demand is also below the national average, and ranked Kentucky 47th out of 50 States in 2010. Overall, the breakdown of electricity load in Kentucky is the function of a heavily industrialized, electricity-intensive economy, a less economically prominent Commercial Sector, and a Residential Sector which utilizes a variety of fuel sources for home heating applications.

Kentucky Electricity Consumption



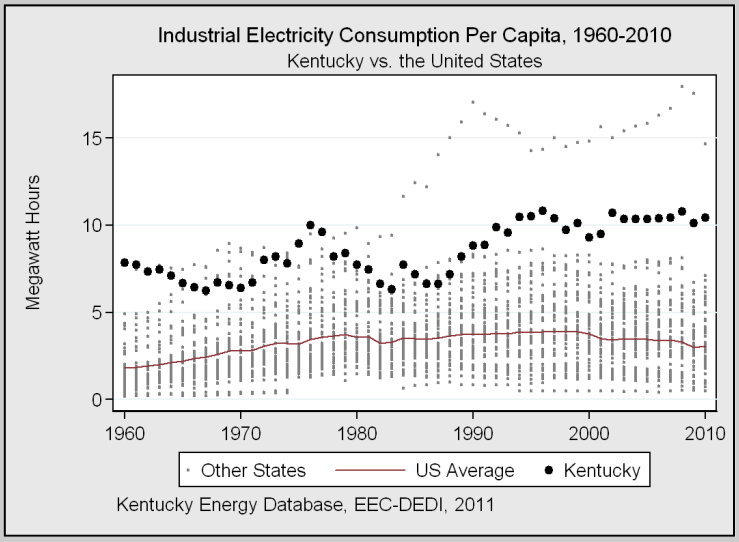
State	MWh per Capita	Rank
Wyoming	24.8	1st
Kentucky	21.6	2nd
California	6.7	50th

In 2010, Kentucky ranked 2nd nationally in terms of total electricity consumption per capita. The U.S. weighted average was 12.1 MWh per capita in 2010.



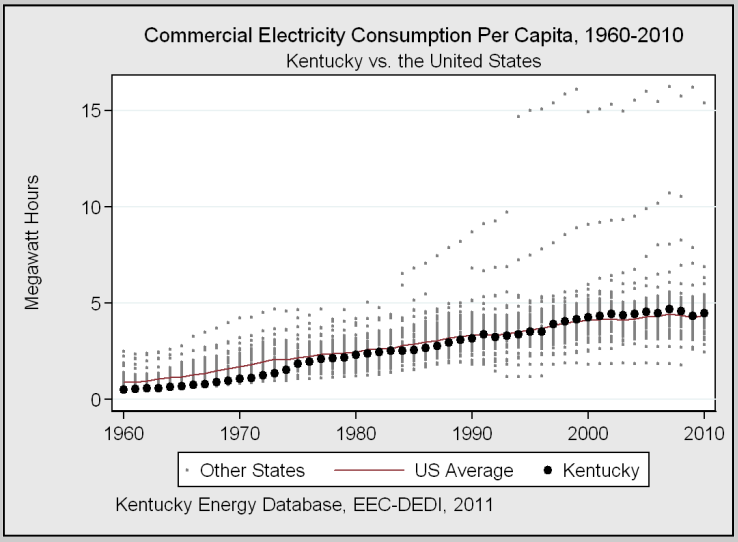
State	MWh per Capita	Rank
Alabama	7.3	1st
Kentucky	6.7	6th
Hawaii	2.2	50th

In 2010, Kentucky ranked 6th nationally in terms of residential electricity consumption per capita. The U.S. weighted average was 4.7 MWh per capita in 2010.



State	MWh per Capita	Rank
Wyoming	14.7	1st
Kentucky	10.4	2nd
New York	0.7	50th

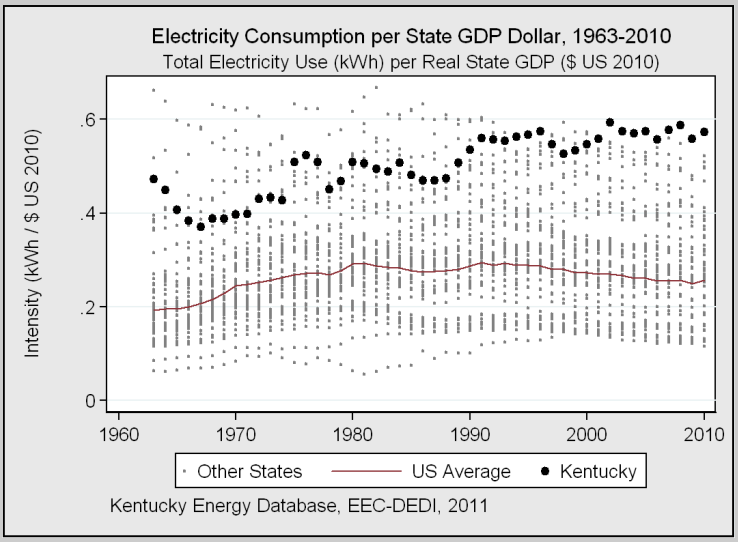
In 2010, Kentucky ranked 2nd nationally in terms of industrial electricity consumption per capita. The U.S. weighted average was 3.1 MWh per capita in 2010.



State	MWh per Capita	Rank
North Dakota	6.9	1st
Kentucky	4.5	24th
Hawaii	2.5	50th

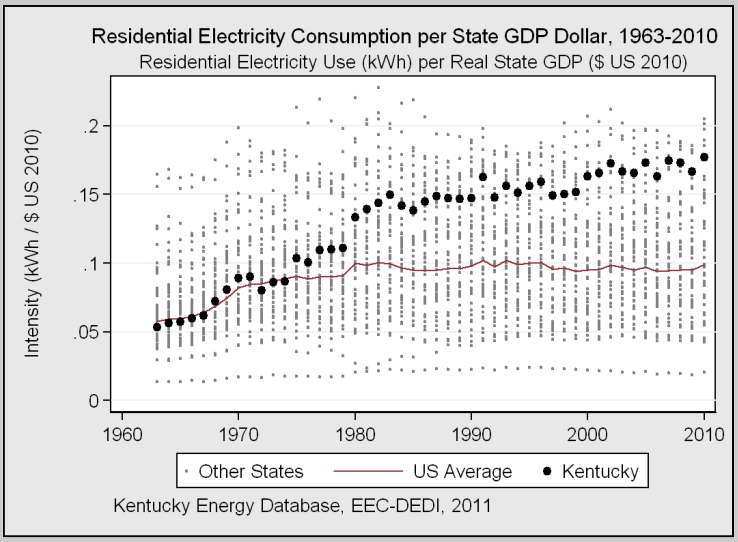
In 2010, Kentucky ranked 24th nationally in terms of commercial electricity consumption per capita. The U.S. weighted average was 4.4 MWh per capita in 2010.

Kentucky Electricity Consumption



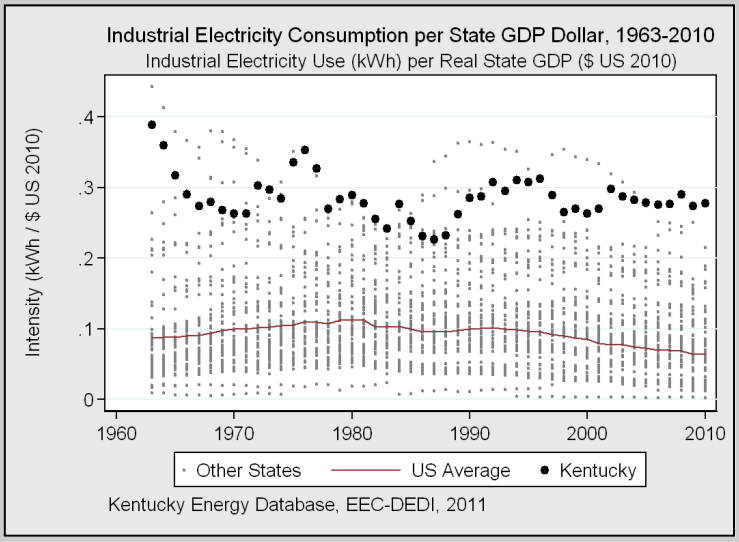
State	kWh / $ US GDP	Rank
Kentucky	0.57	1st
Alabama	0.52	2nd
New York	0.13	50th

In 2010, Kentucky ranked 1st nationally in terms of total electricity consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).



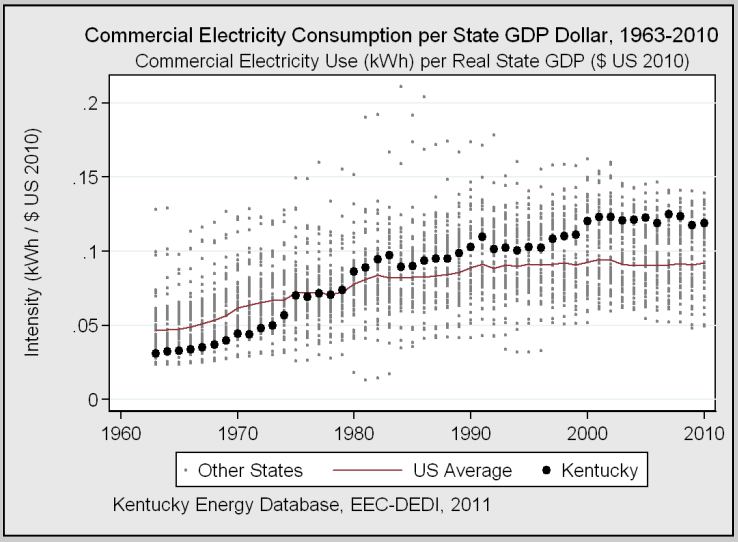
State	kWh / $ US GDP	Rank
Mississippi	0.20	1st
Kentucky	0.18	6th
Alaska	0.04	50th

In 2010, Kentucky ranked 6th nationally in terms of residential electricity consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).



State	kWh / $ US GDP	Rank
Kentucky	0.28	1st
Wyoming	0.21	2nd
New York	0.01	50th

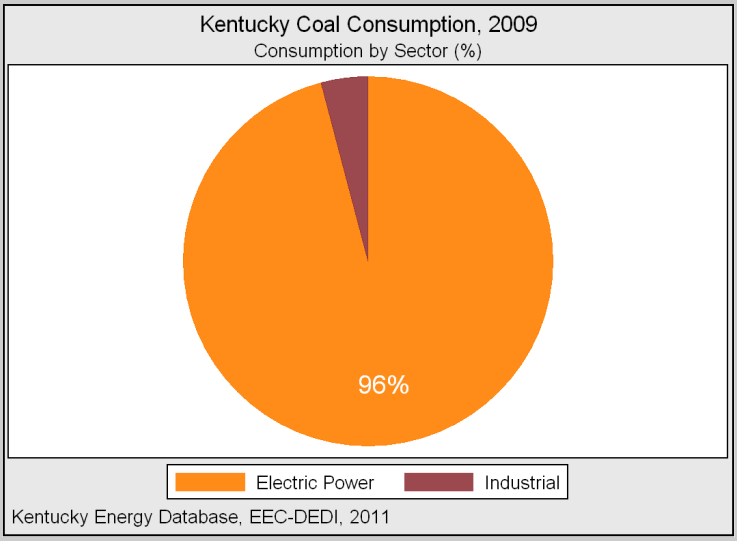
In 2010, Kentucky ranked 1st nationally in terms of industrial electricity consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).

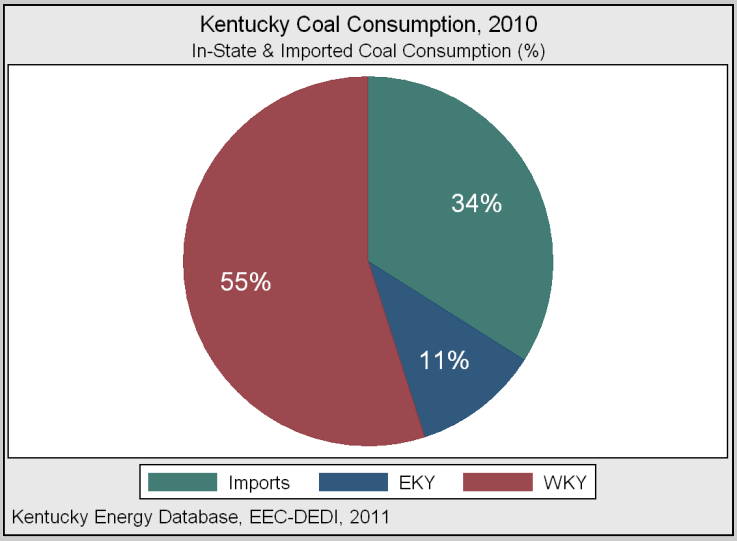


State	kWh / $ US GDP	Rank
Mississippi	0.14	1st
Kentucky	0.12	11th
Massachusetts	0.05	50th

In 2010, Kentucky ranked 11th nationally in terms of commercial electricity consumption required to produce one dollar of State GDP. This metric uses real dollars ($ US 2010).

Kentucky Coal Consumption

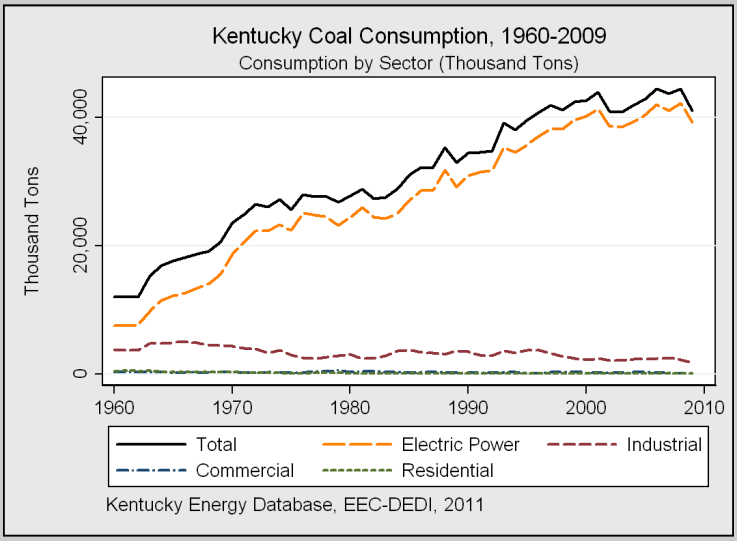


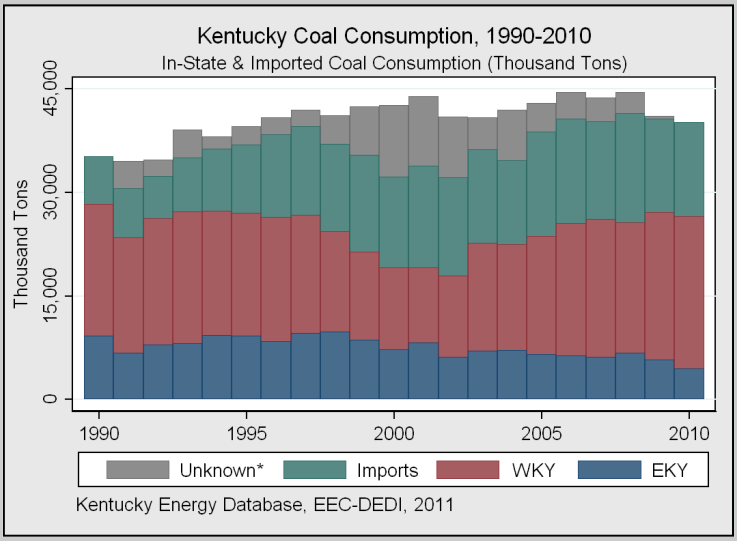


Sector	Thousand Tons	Percentage
Total	40,992	100%
Electric Power	39,271	96%
Industrial	1,673	4%

* A time lag exists in reporting total coal consumption by economic sector versus the adjacent data which tracks coal consumption by coalmine state of origin.

Origin of Coal	Thousand Tons	Percentage
Total	40,148	100%
Western Kentucky	22,055	55%
Imports	13,648	34%
Eastern Kentucky	4,444	11%



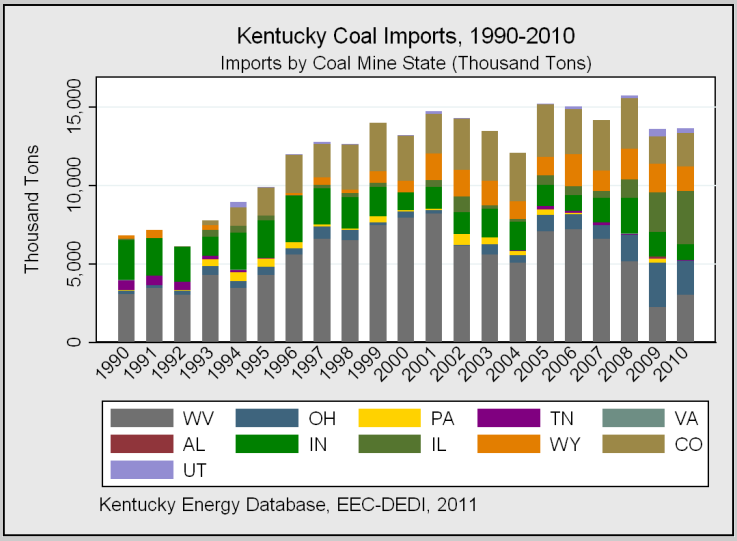


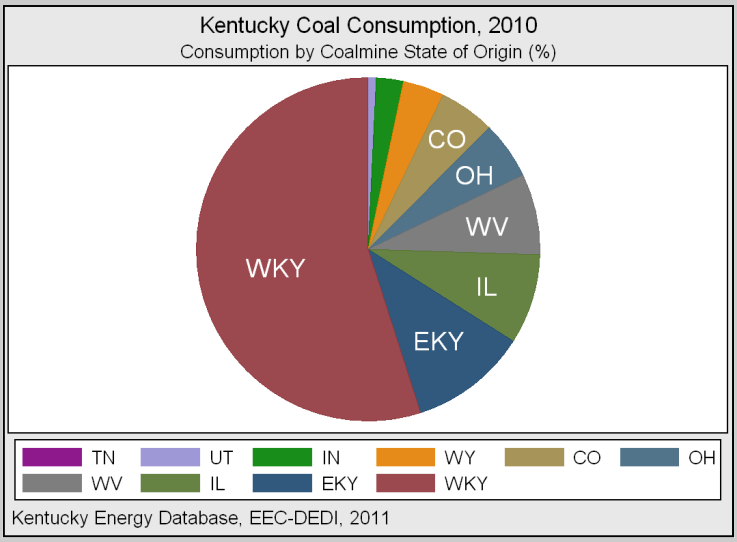
Kentucky consumed 40,992,300 tons of coal in 2009, which represented an 8% decrease in total coal consumption from 2008. The electric power sector consumed the super majority of this amount, accounting for 96% of total coal consumption in 2009. The industrial sector accounted for the remaining 4% of coal consumption, with the commercial and residential sectors consuming negligible amounts of coal.

In 2010, the Commonwealth of Kentucky consumed 40,148,000 tons of coal.* This amount reflected a 13% decline in total coal consumption, compared with 2009. Western Kentucky supplied the majority (55%) of coal consumed in Kentucky in 2010, followed by imported coal (34%) from eight different states, and Eastern Kentucky coal (11%).

* Total coal consumption numbers for 2010 are likely to be revised, following updated federal reporting which combines steam coal and metallurgical coal usage for the year. The current total for 2010 reflects steam coal consumption by electric power facilities in Kentucky.

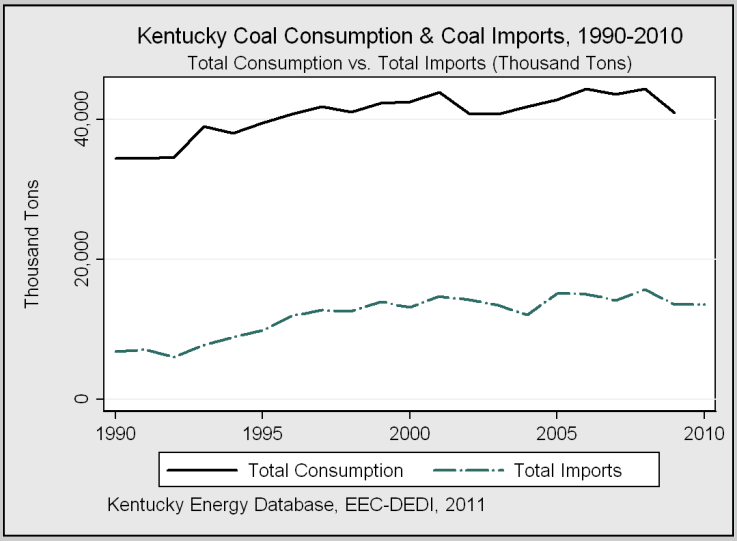
Kentucky Coal Imports





Origin of Coal	Thousand Tons	Percentage
Total	40,148	100%
Total Imports	13,648	34%

Exporting States	No. of States	Year
Total	8	2010

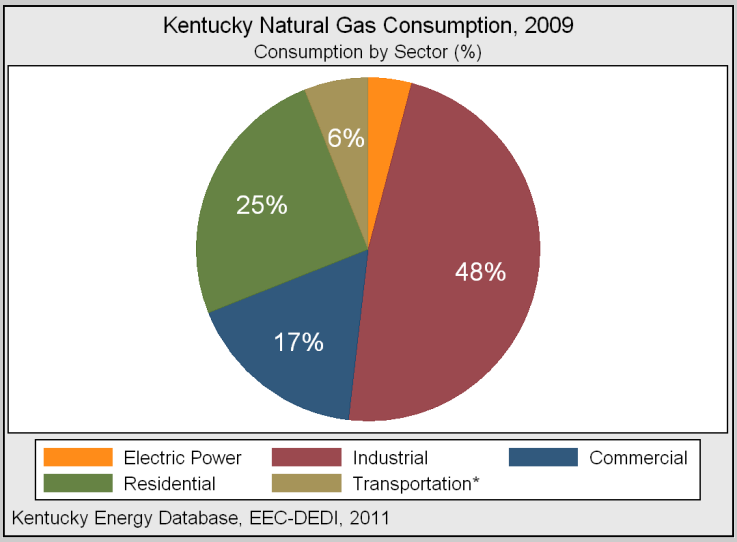


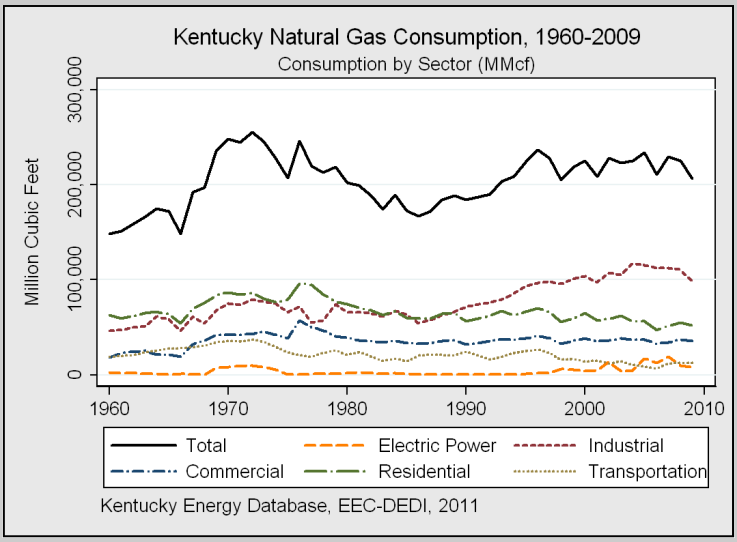
Origin of Coal	Thousand Tons	Percentage
Total	40,148	100%
Western Kentucky	22,055	55%
Eastern Kentucky	4,444	11%
Illinois	3,401	9%
West Virginia	3,064	8%
Ohio	2,177	5%
Colorado	2,123	5%
Wyoming	1,565	4%
Indiana	1,003	3%
Utah	308	<1%
Tennessee	9	<1%

The Commonwealth of Kentucky imported 13,648,000 tons of coal for the generation of electricity in 2010. Originating in eight different states, this amount represented an increase of slightly less than 1% in coal imports from 2009. As a portion of statewide coal deliveries, imported coal represented 34% of all coal delivered in Kentucky in 2010. This proportion remained effectively constant, compared with the previous year.

The market variables influencing the importation of coal into Kentucky focus primarily on price, heat content of a particular coal, and the sulfur content of a particular coal. For electrical power generation, electric utilities and electric power producers must balance concern for these variables when purchasing coal. As a result, electric utilities, municipalities, and power producers elect to blend coal from in-state and out-of-state sources so as to maintain a diversified fuel resource while complying with environmental regulations. Since 1990, electric generation in Kentucky has increasingly utilized higher sulfur coal which can be attributed to the installation of sulfur dioxide scrubbers on coal-fired generators throughout the state. Additionally, the relatively low price of coal from several Western States has also increased imports for electric power generation.

Kentucky Natural Gas Consumption





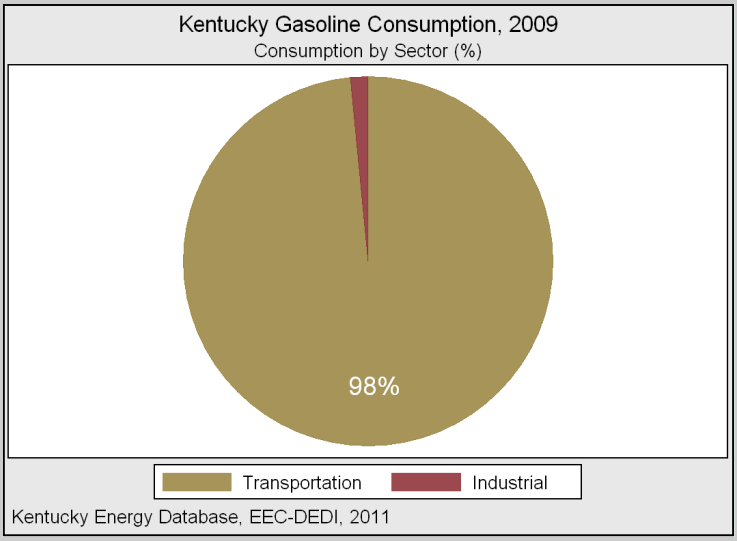
Sector	Million Cubic Feet	Percentage
Total	206,534	100%
Industrial	98,611	48%
Residential	51,615	25%
Commercial	35,439	17%
Transportation*	12,470	6%
Electric Power	8,399	4%

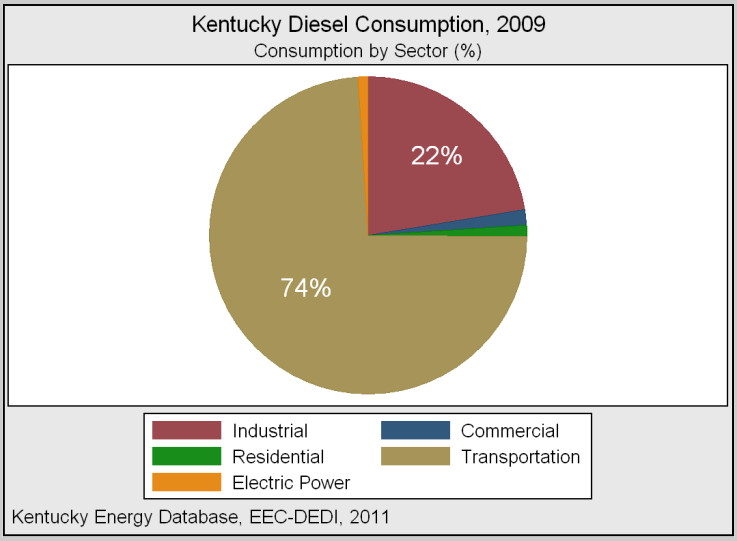
*Natural Gas consumption by the Transportation Sector is the summation of vehicle fuel usage and natural gas utilized in the movement of natural gas resources through transmission and distribution pipelines. In Kentucky in 2009, direct vehicle fuel usage of natural gas was approximately 8 MMcf. The remainder (12,462 MMcf) was consumed as natural gas pipeline fuel.

In 2009, the Commonwealth of Kentucky consumed 206,534 million cubic feet of natural gas, representing an 8% decline in statewide consumption compared with 2008. The Industrial Sector was by far the largest consumer of natural gas, accounting for 48% of total consumption. The Residential Sector was the next largest consumer of natural gas with 25% of consumption, followed by the Commercial Sector with 17% of consumption. The Transportation Sector represented 6% of consumption, with the Electric Power Sector representing the remaining 4% of consumption.

In the Commercial and Residential sectors natural gas is combusted to generate heat, with consumption following a seasonal pattern and notable fluctuation due to weather. In the Industrial Sector, however, natural gas is used as a process feed stock in manufacturing operations in addition to its heating applications. As a result, Industrial Sector natural gas consumption is more consistent throughout the year, while the quantity and magnitude of natural gas consumption is reflective of the size and type of industrial firms within Kentucky.

Kentucky Liquid Fuel Consumption

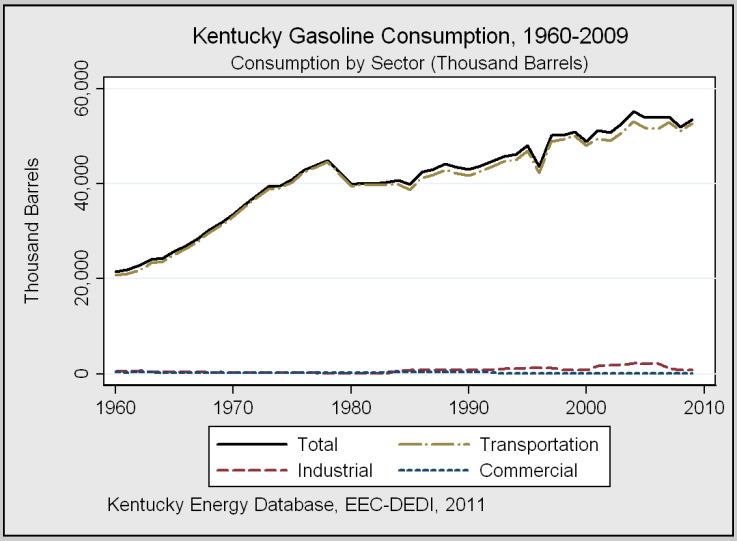


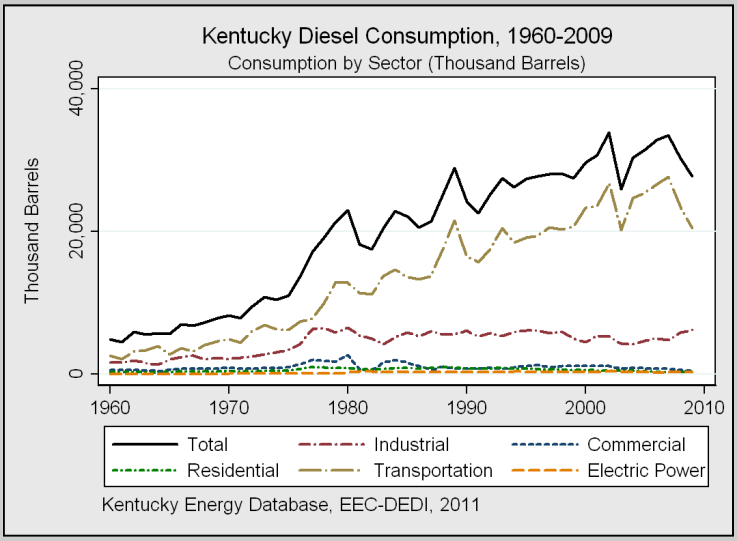


Sector	Thousand Barrels	Percentage
Total	53,439	100%
Transportation	52,589	98%
Other Sectors	850	2%

Year	Price/Gallon ($US)	Fuel Type
2009	2.35	Regular

Sector	Thousand Barrels	Percentage
Total	27,712	100%
Transportation	20,462	75%
Industrial	6,214	23%
Commercial	425	1%
Residential	329	1%
Electric Power	281	1%

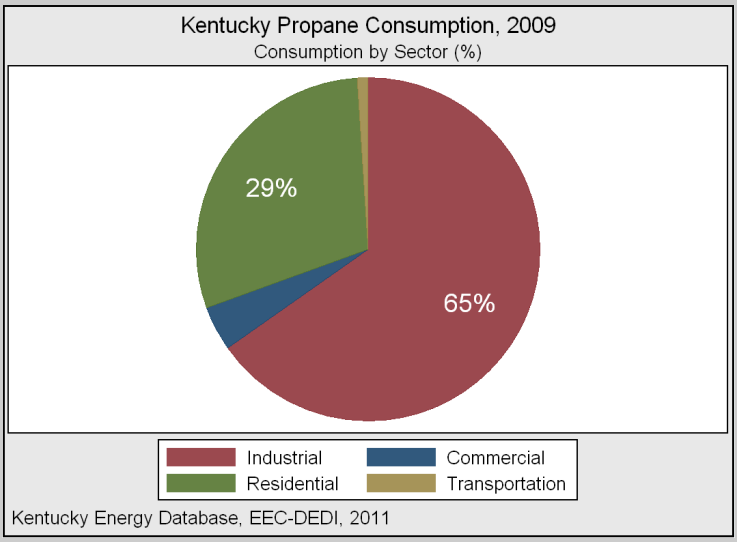


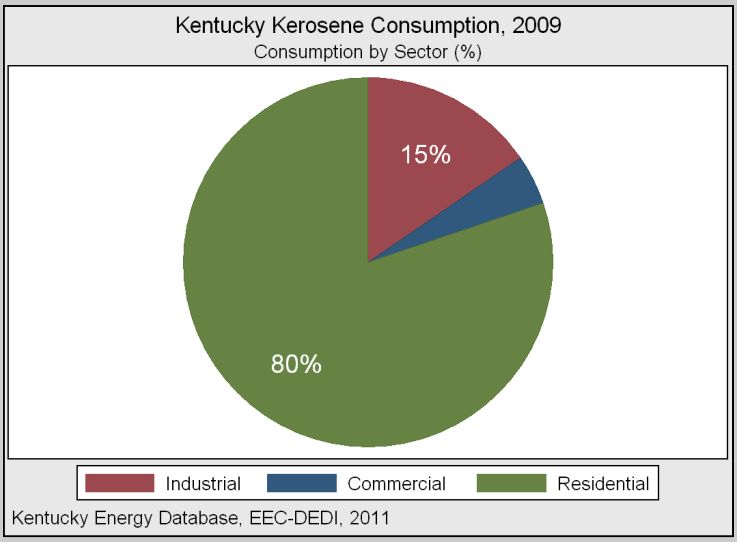


In 2009, residents, businesses, and industries in the Commonwealth of Kentucky consumed 53,439,730 Barrels of gasoline (2,244,468,660 gallons), with almost 98% of this amount related to the Transportation Sector. Compared with 2008, total gasoline consumption in Kentucky increased by 3% in 2009.

In 2009, residents, businesses, and industries in the Commonwealth of Kentucky consumed 27,712,560 Barrels of Diesel (1,272,547,500 gallons), representing an 8% decline in overall consumption compared with 2008. The Transportation Sector accounted for 75% of this consumption, followed by the Industrial Sector with 23% of consumption. The Commercial, Residential, and Electric Power sectors made up the remaining 3% of statewide Diesel consumption in 2009.

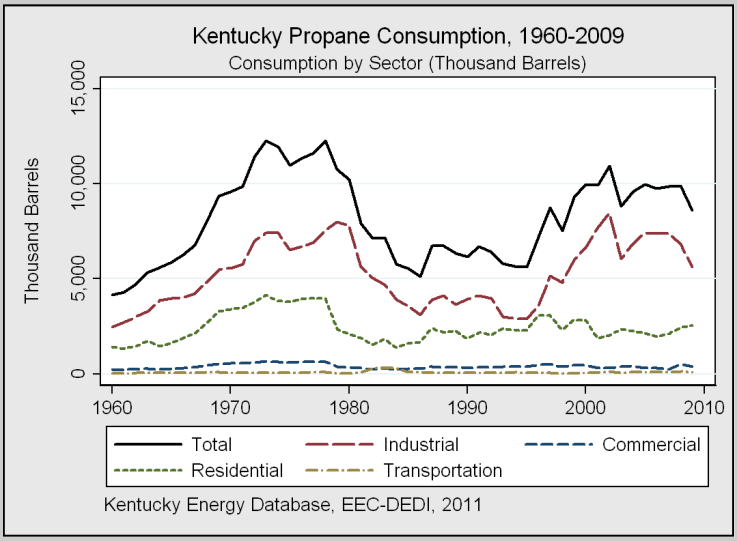
Kentucky Liquid Fuel Consumption

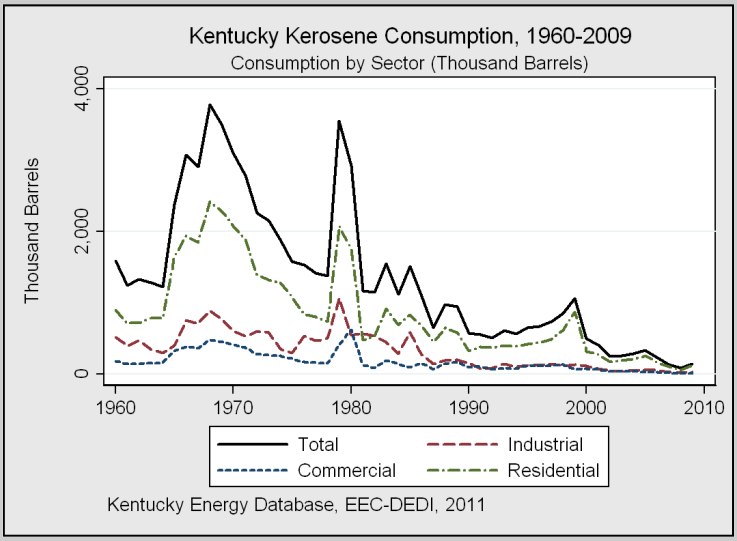




Sector	Thousand Barrels	Percentage
Total	8,602	100%
Industrial	5,611	65%
Residential	2,536	29%
Commercial	366	4%
Transportation	89	1%

Sector	Thousand Barrels	Percentage
Total	142	100%
Residential	114	80%
Industrial	22	15%
Commercial	6	5%





In 2009, residents, businesses, and industries in the Commonwealth of Kentucky consumed 8,602,000 Barrels of propane. This amount reflected a 13% decline in total propane consumption compared with 2008. The Industrial Sector was the largest consumer of propane, accounting for 65% of consumption, followed by the Residential Sector with 29% of consumption. The Commercial and Transportation sectors comprised the remaining 5% of propane consumption in 2009.

In 2009, residents, businesses, and industries in the Commonwealth of Kentucky consumed 142,000 Barrels of kerosene. This amount reflected a 1% increase total kerosene consumption compared with 2008. The Residential Sector was by far the largest consumer of kerosene, accounting for 85% of consumption. The Industrial Sector was the next largest consumer, with 15% of consumption. The Commercial Sector constituted the remaining 5% of kerosene consumption in 2009. *These quantities exclude kerosene-type jet fuel from total kerosene consumption by economic sector.

Energy Production

Description:

Energy production is the process of mining, collecting, or cultivating an energy resource that can be harnessed or converted into a more useful form of energy such as heat, steam, locomotion, or electricity. Energy production is based on naturally occurring or man-made resources such as coal, natural gas, crude oil, and renewable sources (hydroelectric power, biomass, etc.). Consequently, it is of great interest to measure and understand the reality and magnitude of energy production within Kentucky, as this dynamic powerfully influences both the energy security and economic security of the Commonwealth.

Accounting:

For the purposes of standardized measurement and accounting, energy production within the Commonwealth is quantified by converting all supplies of energy into a British Thermal Unit (BTU) value. Though more widely used physical measurements may be included to reflect production of a particular energy resource, this conversion is necessary to form a balanced comparison of production across energy supplies. Subsequently, a general understanding of the significance of a specific energy resource and its related production can be developed.

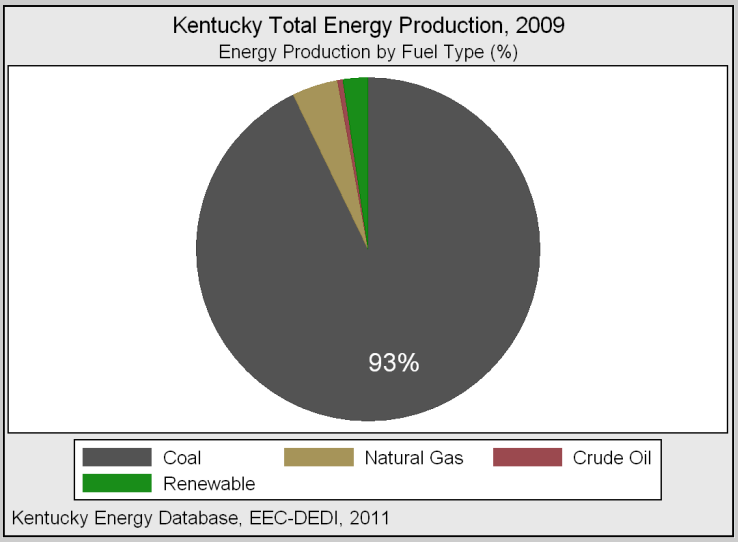
Summary:

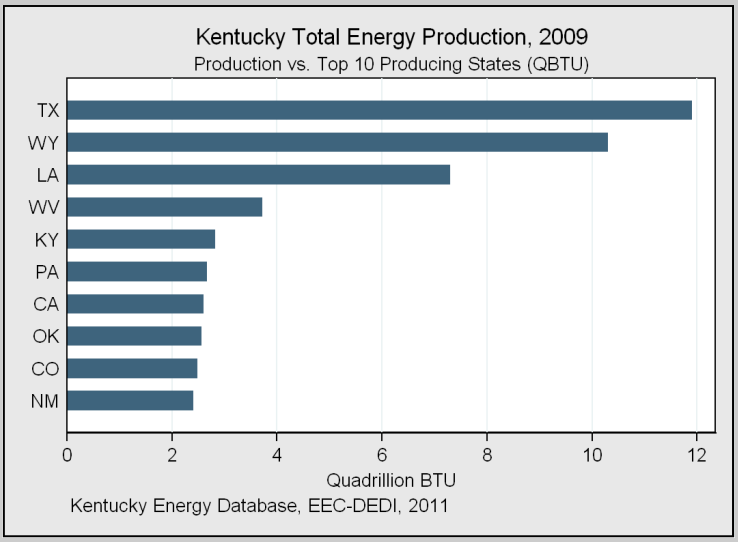
In 2009, the Commonwealth of Kentucky produced 2.8 Quadrillion BTU of energy. Compared with an energy consumption total of 1.8 Quadrillion BTU for the same year, this production total made Kentucky a net exporter of energy supplies. The super majority of energy exports from the Commonwealth were related to the export and sale of coal mined in Kentucky. Overall, total energy production in the State decreased by 10%, compared with 2008.

In an aggregate comparison of energy production, coal by far remained the Commonwealth's primary source of energy production. Ranking third nationally, Kentucky produced over 107 million tons of coal in 2009 (of which 70% was exported to one of 20 different States). This amount equated to 2.6 Quadrillion BTU, or approximately 93% of total energy production in the Commonwealth. The supremacy of coal for energy production in Kentucky for 2009 follows long standing historical trends, and is unlikely to change in the near term.

Other forms of energy production within Kentucky in 2009 included the extraction of crude oil and natural gas, as well as the collection and/or cultivation of renewable energy resources. The production of these resources comprised the remaining 7% of total energy production in the State. Natural gas production was the leader of this group, accounting for 0.12 Quadrillion BTU, or approximately 4% of Kentucky's total energy production. Renewable resources, such as hydroelectric power, wood products, ethanol, and geothermal sources, constituted approximately 2% of statewide energy production. Crude oil production, which has remained effectively stable at around 2.5 million barrels a year, generated 0.01 Quadrillion BTU of energy in 2009, or less than 1% of Kentucky's total energy production.

Kentucky Total Energy Production

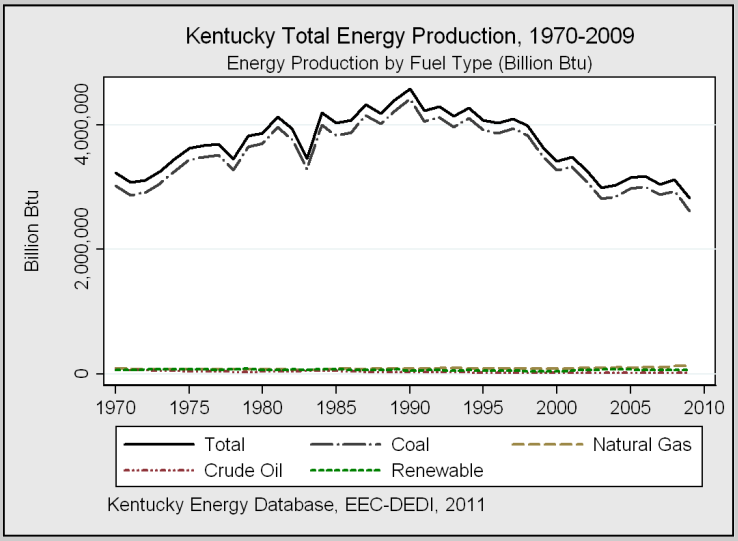


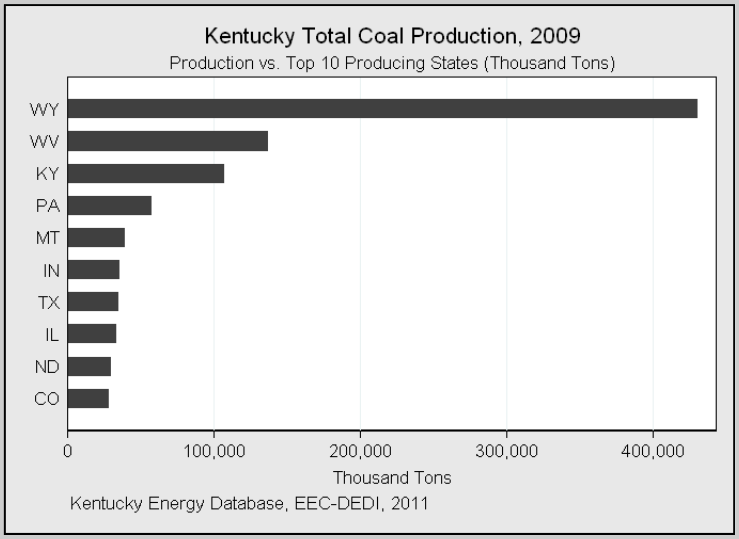


Fuel Type	Billion BTU	Percentage
Total	2,819,417	100%
Coal	2,616,139	93%
Natural Gas	121,953	4%
Renewable	66,193	2%
Crude Oil	15,132	1%

State	Quadrillion BTU	Rank
Texas	11.9	1st
Kentucky	2.8	5th

Coalmine State	Thousand Tons	Rank
Wyoming	431,107	1st
Kentucky	107,802	3rd

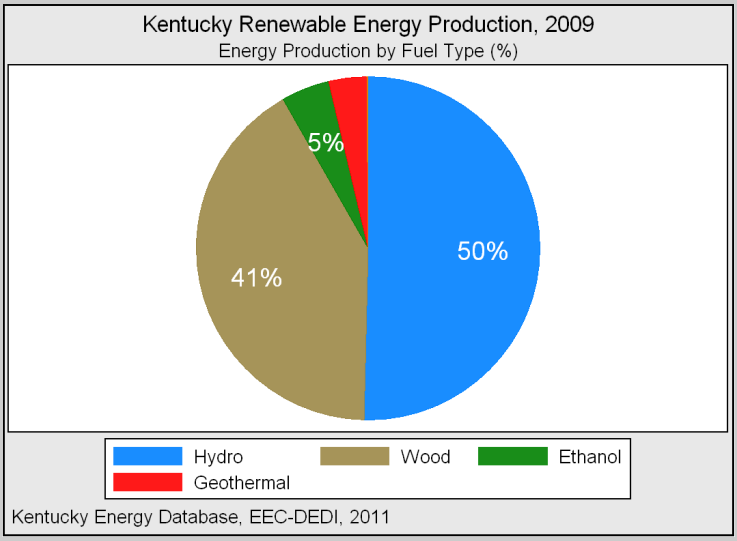


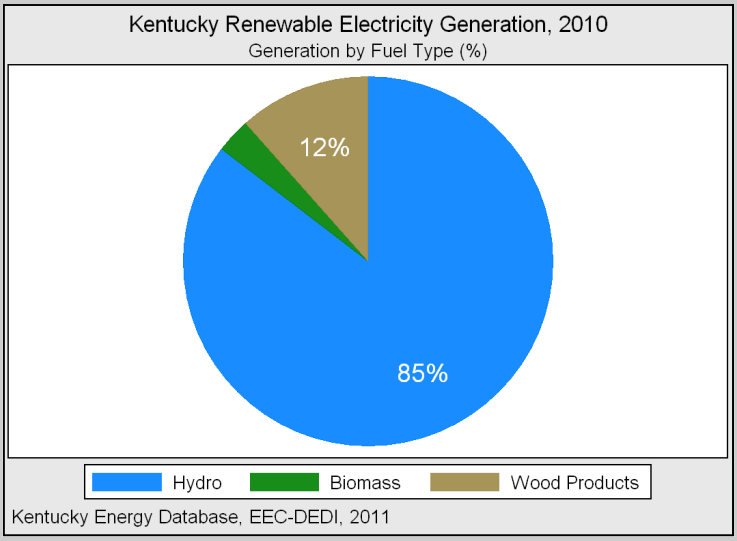


As the third largest coal producer in the nation, the vast majority of energy production in Kentucky is related to the extraction of coal. In 2009, the Commonwealth of Kentucky produced 2.8 Quadrillion BTU of energy. This amount represented a 10% decrease in total energy production compared with 2008. Of this amount, coal accounted for 93% of all energy production in Kentucky in 2009. Natural gas, renewable resources, and crude oil comprised the remaining 7% of energy production in the Commonwealth in 2009.

In a national context, Kentucky was the fifth largest producer of energy in the United States in 2009. Deriving production through coal, natural gas, crude oil, and renewable resources, Kentucky maintained its ranking compared with 2008. Additionally, in 2009, Kentucky held its position as the third largest producer of coal in the United States. Realizing output from two distinct geological basins, the Appalachian Basin in the East and the Illinois Basin in the West, statewide production for 2009 reached over 107 million tons.

Kentucky Renewable Energy

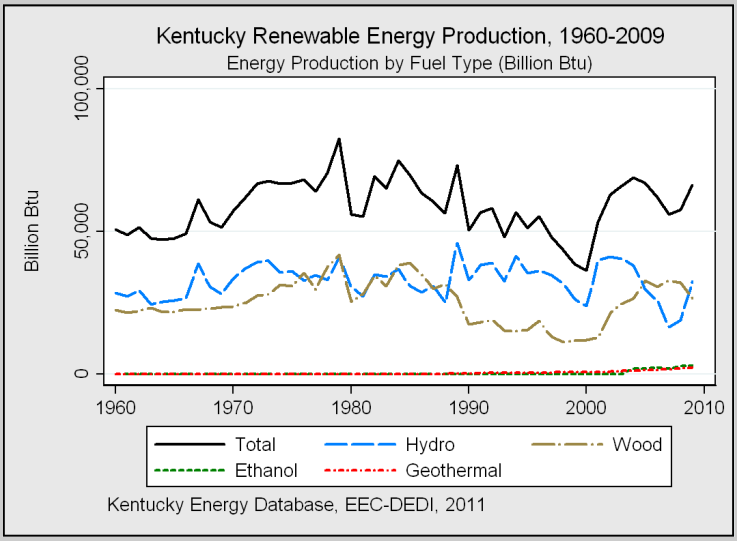


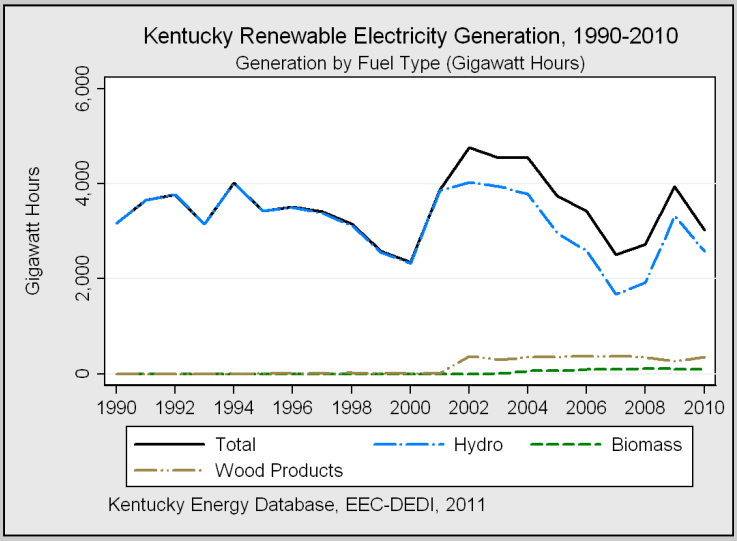


Fuel Type	Billion BTU	Percentage
Total	66,193	100%
Hydroelectric*	32,380	50%
Wood & Biomass	26,552	41%
Ethanol	2,947	5%
Geothermal	2,258	4%
Losses in Production	2,056	-

Fuel Type	Gigawatt Hours	Percentage
Total	3,038	100%
Hydroelectric*	2,580	85%
Wood & Biomass	458	15%

*Hydroelectric generation is directly accounted through Gigawatt-hour consumption, whereas hydroelectric production (Billion BTU) is a calculated fossil fuel displacement conversion. This conversion represents the amount of fossil fuel energy required to generate an equal amount of electricity.

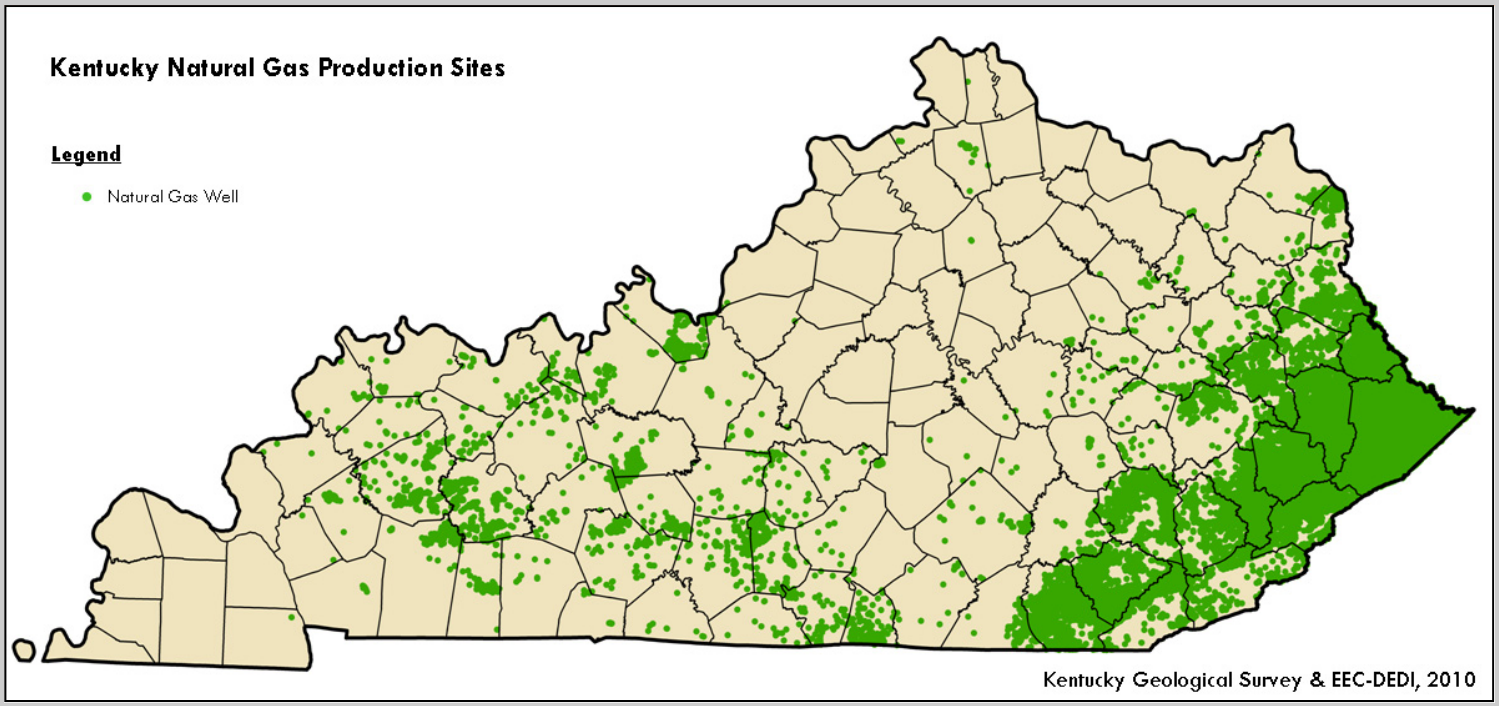


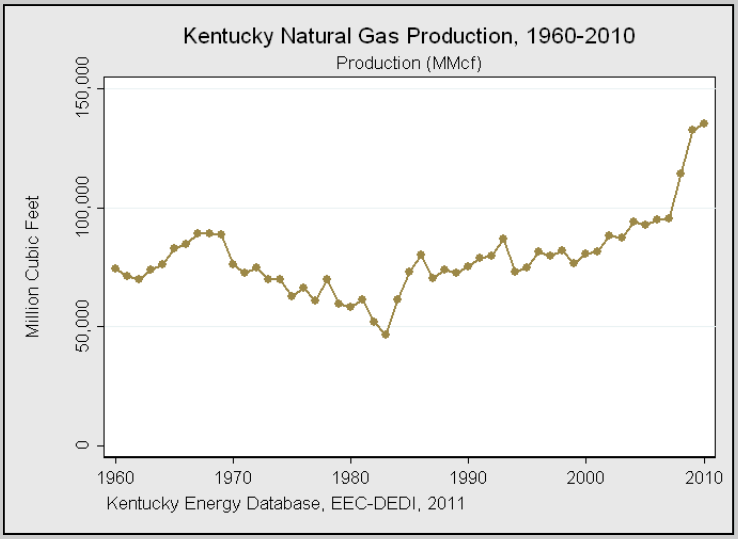


In 2009, Kentucky produced 0.06 Quadrillion BTU of energy from renewable resources. This amount reflected a 15% increase in renewable energy production compared with 2008. Of available renewable energy resources, hydroelectric power and wood products were the largest contributors to renewable energy production. In 2009, hydroelectric facilities produced 50% of renewable energy in Kentucky, while wood and biomass resources accounted for 41% of renewable energy production. Fuel ethanol production and geothermal energy systems accounted for the remaining 6% of renewable energy production in 2009.

In Kentucky, electricity generation from renewable energy sources primarily involves hydroelectric power. The amount of electricity that is generated from hydroelectric dams in Kentucky fluctuates annually due to varying levels of precipitation, temperature, and electricity demand. In 2010, renewable energy resources generated 3,038 Gigawatt-hours of electricity. This amount represented a 23% decrease in renewable electricity generation compared with 2009. Of this amount, hydroelectric power accounted for 85% of renewable electricity generation, followed by wood and biomass resources with 15% of renewable generation.

Kentucky Natural Gas Production

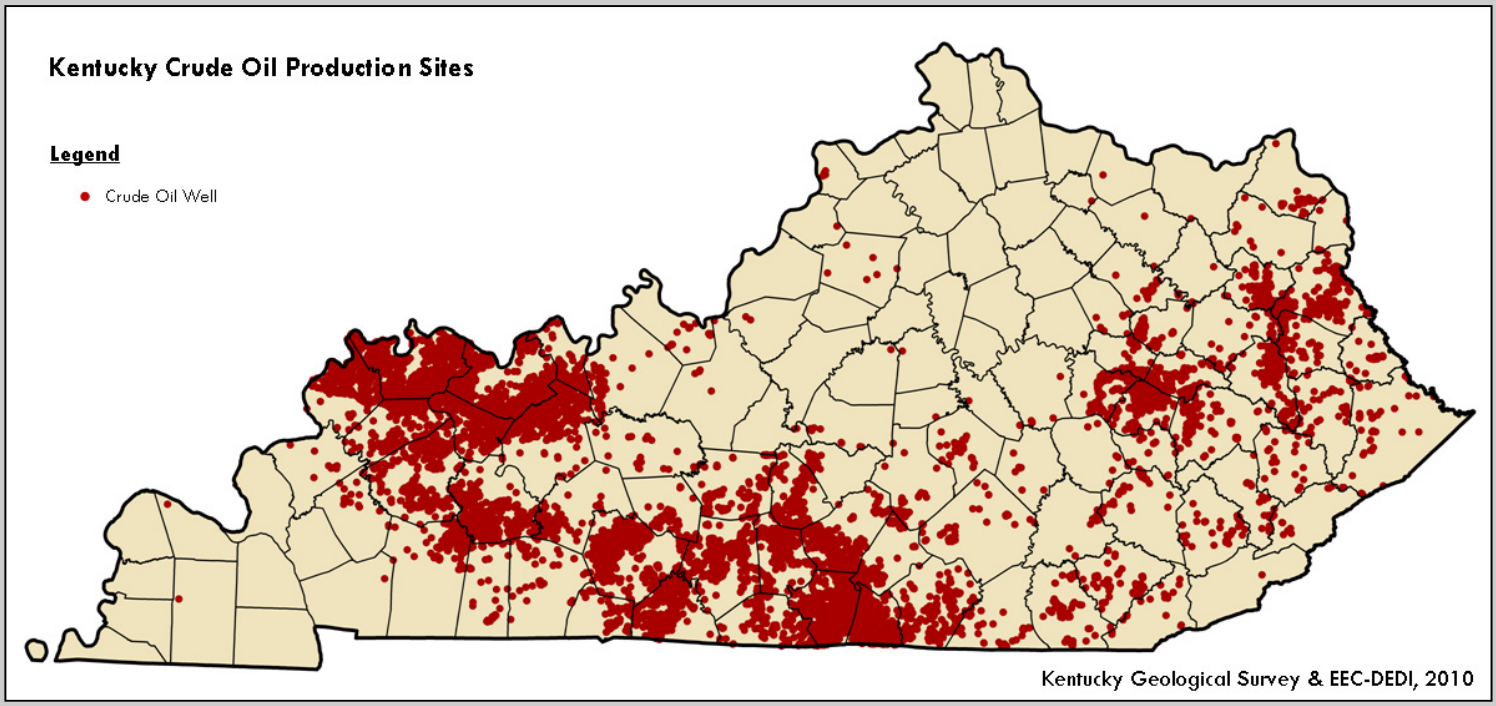


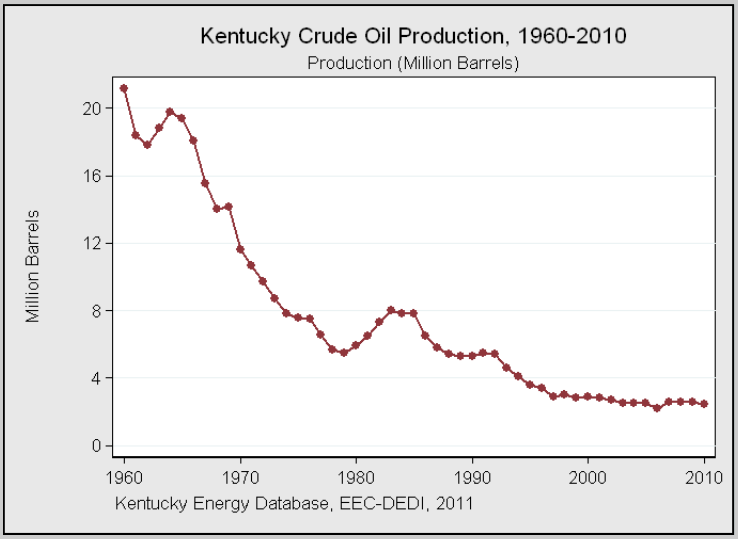


Production	Million Cubic Feet	Rank
U.S.A	22,568,863	1
Kentucky	135,147	17

The Commonwealth of Kentucky produced 135,147 Million cubic feet of natural gas in 2010. This amount represented a 19% increase in total natural gas production compared with 2009. As reflected in the map of Kentucky Natural Gas Production, the preponderance of natural gas is located and extracted in Eastern Kentucky. Though statewide natural gas production is projected to increase substantially, in a national context, gas production in Kentucky contributes to less than 1% of total U.S. production.

Kentucky Crude Oil Production



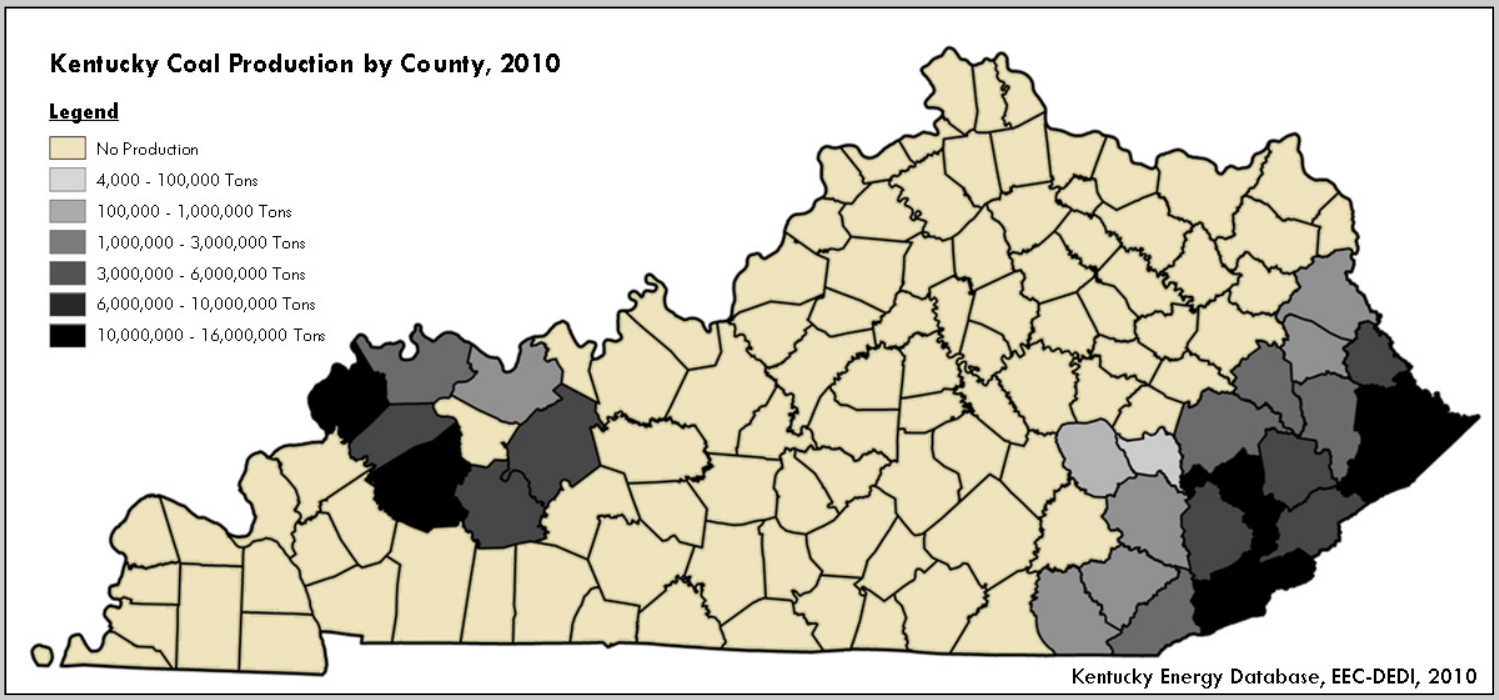


Production	Million Barrels	Rank
U.S.A	2,007*	1
Kentucky	2.47	20

The Commonwealth of Kentucky produced 2.47 Million Barrels of crude oil in 2010. This amount represented a 5% decline in total crude oil production in the state, compared with 2009. Annual crude oil production in Kentucky has remained relatively stable, between 2.4 and 2.9 million barrels, since the year 2000. In a national context, crude oil production in Kentucky contributes to less than 1% of total U.S. production.

*U.S. Crude Oil production for 2010 is estimated from EIA "Short-Term Energy and Winter Fuels Outlook" (October 12, 2011).

Kentucky Coal Production

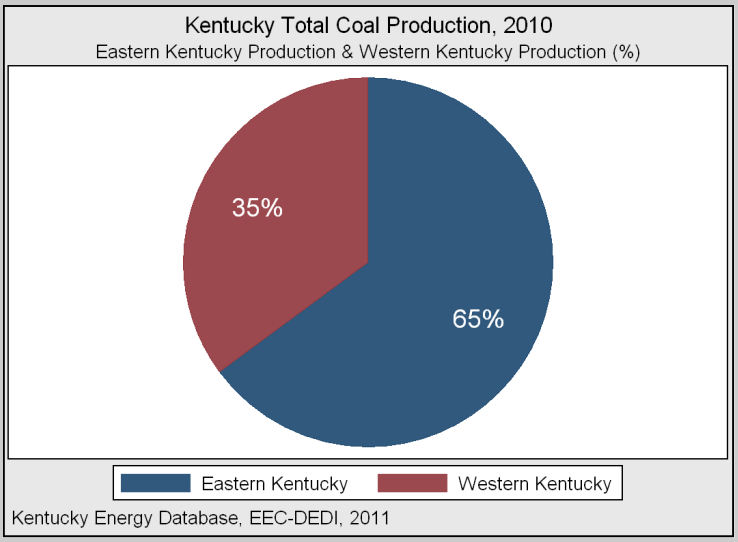


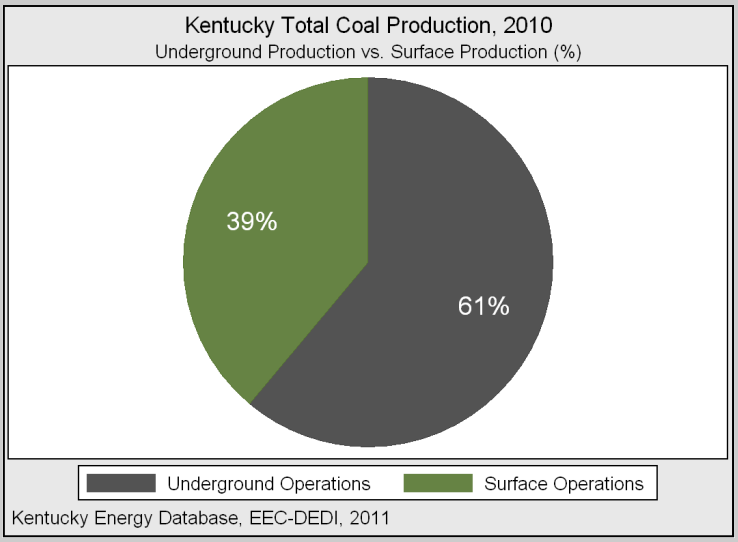
County	Production (Tons)	Percentage
Total	105,007,300	100%
Pike	15,800,000	15%
Perry	14,200,000	14%
Harlan	10,500,000	10%
Union	10,300,000	10%
Hopkins	9,237,887	9%
Webster	5,871,517	6%
Martin	5,228,615	5%
Knott	5,058,867	5%
Muhlenberg	4,599,013	4%
Ohio	4,158,758	4%
Letcher	3,979,372	4%
Leslie	3,684,544	4%
Magoffin	2,710,662	3%
Henderson	2,332,566	2%

County	Production (Tons)	Percentage
Bell	2,185,176	2%
Floyd	2,057,758	2%
Breathitt	1,044,506	1%
Knox	499,285	<1%
Clay	488,874	<1%
Daviess	373,954	<1%
Whitley	352,760	<1%
Lawrence	158,896	<1%
Johnson	156,849	<1%
Jackson	27,462	<1%
Owsley	4,363	<1%

Of the 120 counties of the Commonwealth of Kentucky, 25 counties reported coal production in 2010. Coal production was dispersed between the Central Appalachian Basin of Eastern Kentucky and the Illinois Basin of Western Kentucky, and totaled 105,007,300 tons. Compared with 2009, total coal production in 2010 fell by 3% and saw four fewer counties register production for the year. Overall, coal production was substantially lead by the counties of Eastern Kentucky, which is consistent with historical output levels.

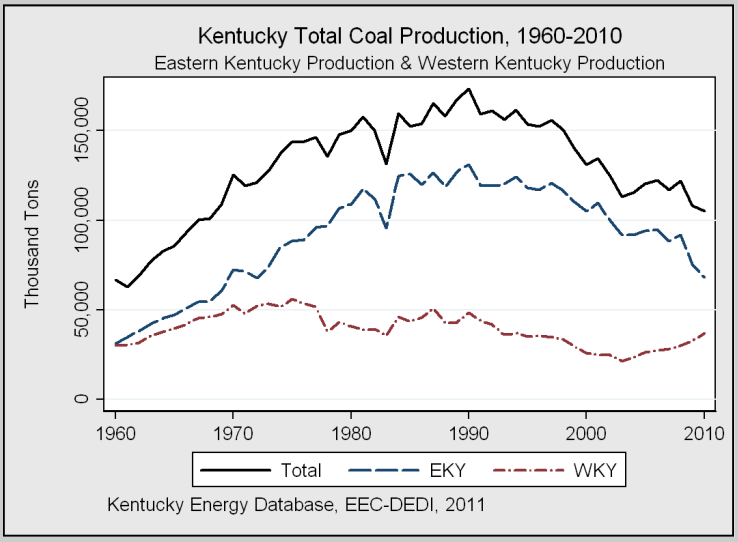
Kentucky Coal Production

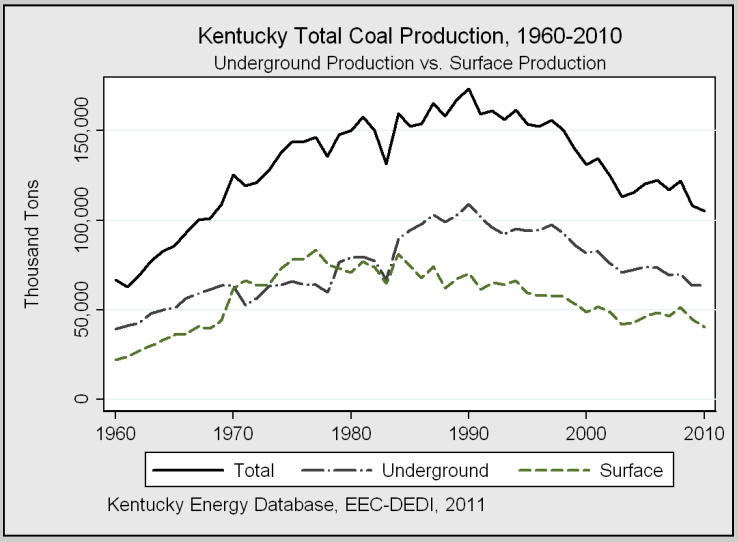




Region	Thousand Tons	Percentage
Total	105,007	100%
Eastern Kentucky	68,112	65%
Western Kentucky	36,896	35%

Mine Type	Thousand Tons	Percentage
Total	105,007	100%
Underground	63,780	61%
Surface	40,617	39%

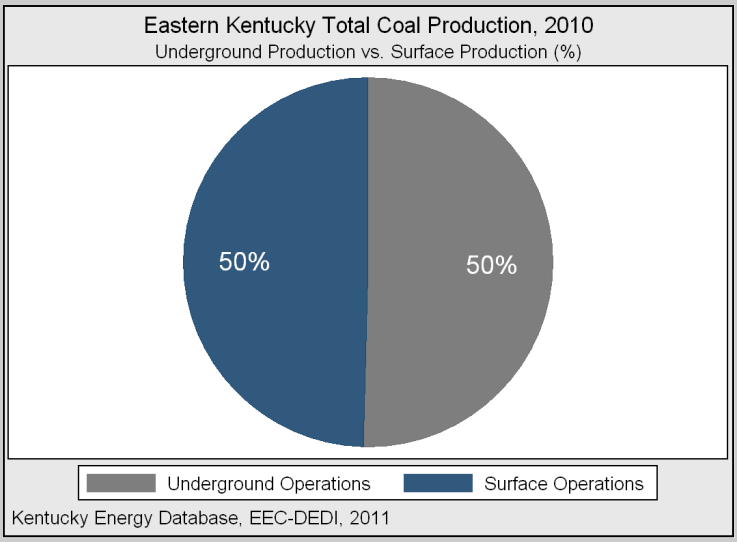


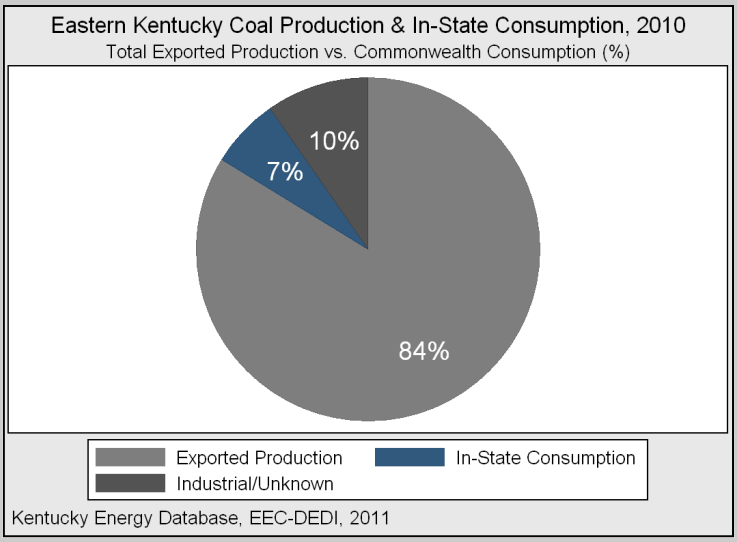


Total coal production in Kentucky in 2010 fell by 3% to 105,007,000 tons, compared with 2009. Overall production was led by the Appalachian Basin of Eastern Kentucky, which produced over 68,112,000 tons, reflecting 65% of total production. Conversely, the Illinois Basin of Western Kentucky produced over 36,896,000 tons of coal, accounting for 35% of total production. The decline in statewide production was weighted by Eastern Kentucky, which saw production fall by 10%, whereas Western Kentucky increased production by 12% in 2010.

Coal production in Kentucky was decisively split toward underground operations in 2010. Accounting for 63,780,000 tons and 61% of total production, underground operations effectively maintained output levels compared with 2009. Surface mine operations, which generated 40,617,000 tons of coal and 39% of total production, displayed a 9% decrease in output compared with 2009.

Eastern Kentucky Coal Production

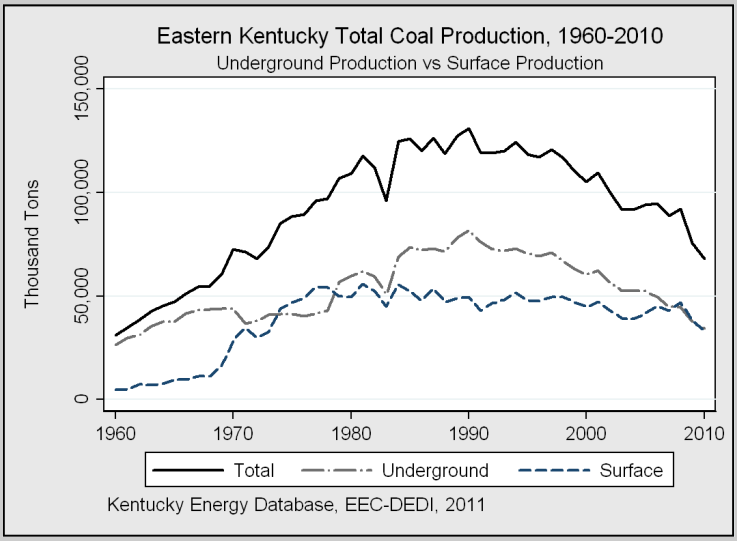


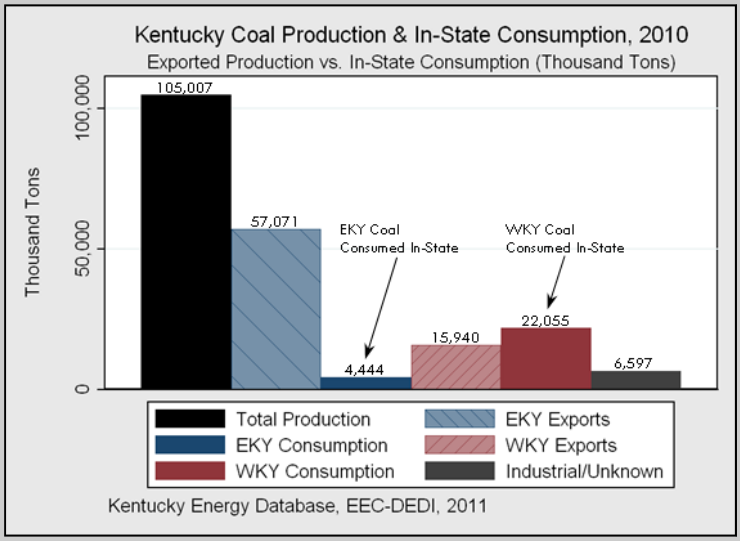


Mine Type	Thousand Tons	Percentage
Total	68,112	100%
Underground	34,320	50%
Surface	33,638	50%

Production	Thousand Tons	Percentage
Total	68,112	100%
Exported Production*	57,071	84%
In-State Consumption	4,444	7%
Industrial/Unknown	6,597	10%

* Exported Production reflects the interstate trade of coal, and does not include international shipments and/or sales of coal mined in Eastern Kentucky.

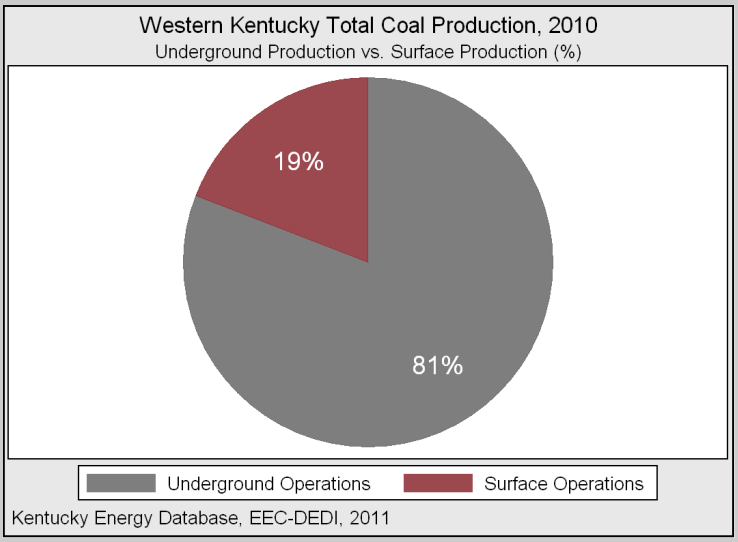


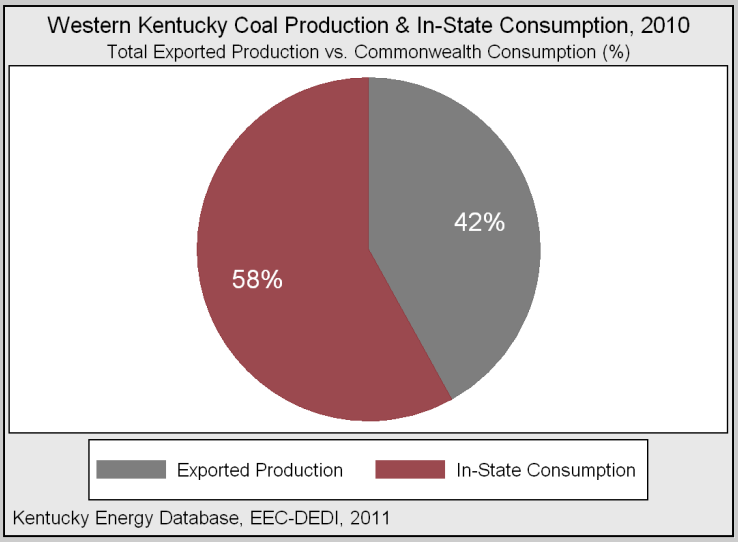


The Appalachian Basin of Eastern Kentucky produced 68,112,000 tons of coal in 2010. This amount represented a 10% decline in coal production in the Eastern Kentucky region, compared with 2009. Of the coal mined in Eastern Kentucky in 2010, production was evenly split between surface operations (50%) and underground operations (50%).

Following the mining process, 84% of Eastern Kentucky coal was exported to 17 different states in 2010. Domestic exports of Eastern Kentucky coal, which reached over 57 million tons in 2010, reflected an 11% decrease in exports compared with 2009. Inversely, 7% of Eastern Kentucky coal production was shipped and consumed within the Commonwealth of Kentucky in 2010. In-state consumption of Eastern Kentucky coal, which reached over 4 million tons displayed a decrease of 23% compared with 2009.

Western Kentucky Coal Production

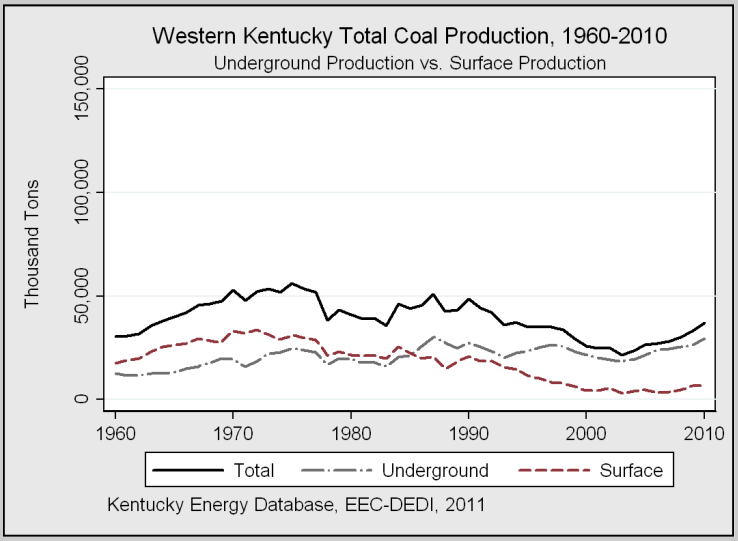


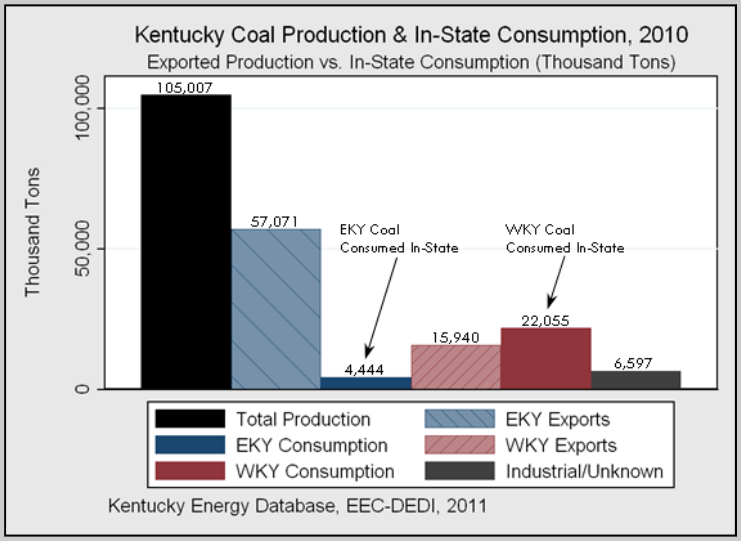


Mine Type	Thousand Tons	Percentage
Total	36,896	100%
Underground	29,550	81%
Surface	6,979	19%

Production	Thousand Tons	Percentage
Total	36,896	100%
In-State Consumption	22,055	58%
Exported Production*	15,940	42%

* Exported Production reflects the interstate trade of coal, and does not include international shipments and/or sales of coal mined in Western Kentucky.

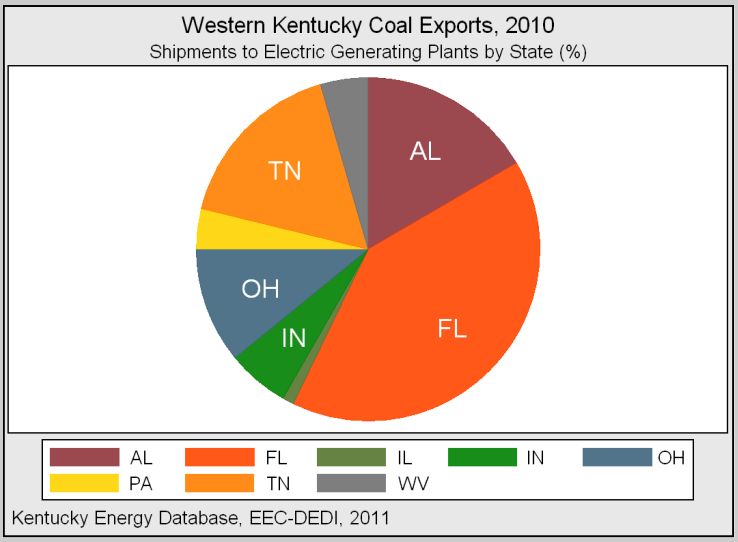


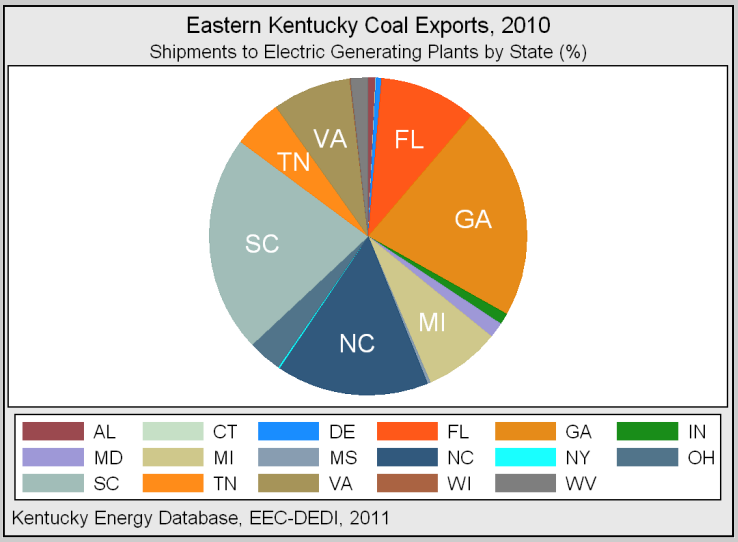


The Illinois Basin of Western Kentucky produced 36,896,000 tons of coal in 2010. This amount represented a 12% increase in coal production in the Western Kentucky region, compared with 2009. Of the coal mined in Western Kentucky in 2010, underground operations comprised 81% of total production while surface operations accounted for the remaining 20% of production.

Following the mining process, 42% of Western Kentucky coal was exported to 8 different States in 2010. Domestic exports of Western Kentucky coal, which reached nearly 16 million tons in 2010, reflected a 65% increase in exports compared with 2009. Inversely, 58% of Western Kentucky coal production was shipped and consumed within the Commonwealth of Kentucky in 2010. In-state consumption of Western Kentucky coal, which reached over 22 million tons, also displayed an increase of 37% compared with 2009.

Kentucky Coal Exports





Importing State	Thousand Tons	Percentage
Total	15,940	100%
Florida	6,401	41%
Tennessee	2,634	17%
Alabama	2,615	17%
Ohio	1,717	11%
Indiana	918	6%
West Virginia	706	4%
Pennsylvania	601	4%
Illinois	167	1%

Coal Field	Thousand Tons	Percentage
Total Exports	73,011	100%
Eastern Kentucky	57,071	78%
Western Kentucky	15,940	22%

Importing States	Western Kentucky	Eastern Kentucky
Total	8	17

Importing State	Thousand Tons	Percentage
Total	57,071	100%
South Carolina	12,642	22%
Georgia	12,511	22%
North Carolina	8,885	16%
Florida	5,647	10%
Virginia	4,540	8%
Michigan	4,407	8%
Tennessee	2,841	5%
Ohio	1,962	3%
West Virginia	1,033	2%
Maryland	897	2%
Indiana	637	1%
Alabama	435	1%
Delaware	312	1%
Mississippi	171	<1%
New York	82	<1%
Wisconsin	31	<1%
Connecticut	24	<1%

In 2010, coal mined from the Illinois Basin in Western Kentucky was exported to 8 different States. The total amount of coal exported domestically from Western Kentucky reached over 15,940,000 tons, and represented a 65% increase in exports from this region compared with the previous year of 2009. The States importing the largest amounts of Western Kentucky Coal in 2010 were Florida (43%), Tennessee (13%), Alabama (12%), and Ohio (17%). However, Kentucky remained by far the largest market for Western Kentucky coal in 2010.

In 2010, coal mined from the Appalachian Basin in Eastern Kentucky was exported to 17 different States. The total amount of coal exported domestically from Eastern Kentucky reached over 57,071,000 tons, and represented an 11% decline in exports from this region compared with the previous year of 2009. The States importing the largest amounts of Eastern Kentucky Coal in 2010 were South Carolina (22%), Georgia (22%), North Carolina (16%), and Florida (10%).

Electricity Service & Rates

Retail Service:

Electricity in Kentucky is provided to customers by one of the following types of entities, One: Retail electric suppliers that are regulated by the Kentucky Public Service Commission (PSC); Two: Municipally-owned utilities (MOUs); or Three: By the Tennessee Valley Authority (TVA) and its associated distributors within the Commonwealth. Furthermore, each electric supplier has the exclusive right to serve the customers within its territory. (See maps on following pages.)

Electric suppliers that are regulated by the PSC fall into two categories: Investor Owned Utilities and Rural Electric Cooperative Companies (RECCs). There are four investor-owned companies in Kentucky: Duke Kentucky, Kentucky Power Company (aka. AEP), Kentucky Utilities, and LG&E. Each of these companies generates or purchases the power required to meet its respective customers' electricity demands. There are 19 rural electric cooperatives that are regulated by the PSC. Sixteen of these jointly own and purchase power from East Kentucky Power Cooperative. The remaining three jointly own and purchase power from Big Rivers Electric Corporation. A "distribution" cooperative typically receives power from its respective "generation and transmission" cooperative at a substation in the distributor's service territory.

There are five Rural Electric Cooperative Companies (RECCs) and ten municipal companies that secure all of their electricity from TVA. These RECCs and municipalities then resell and distribute electricity to customers within their service territories. Separately, TVA also serves several large industrial customers within Kentucky directly.

Additionally, there are eighteen municipal electric suppliers that do not receive electricity from TVA. These municipalities either self-generate electricity - by owning and/or operating generating facilities - or purchase power from various sources. 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.

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. 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 is 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.

Electricity Generation Infrastructure

Capacity

There is approximately 19.9 Gigawatts of electric generating capacity in Kentucky. Capacity is the maximum amount of electricity that can be produced at one moment in time. Of total capacity, approximately 14.3 Gigawatts (72%) of this capacity is coal fired, 4.7 Gigawatts (24%) is gas or petroleum fired, 0.8 GW (4%) is hydro power, and .06 GW (>1%) is other renewable generation capacity.

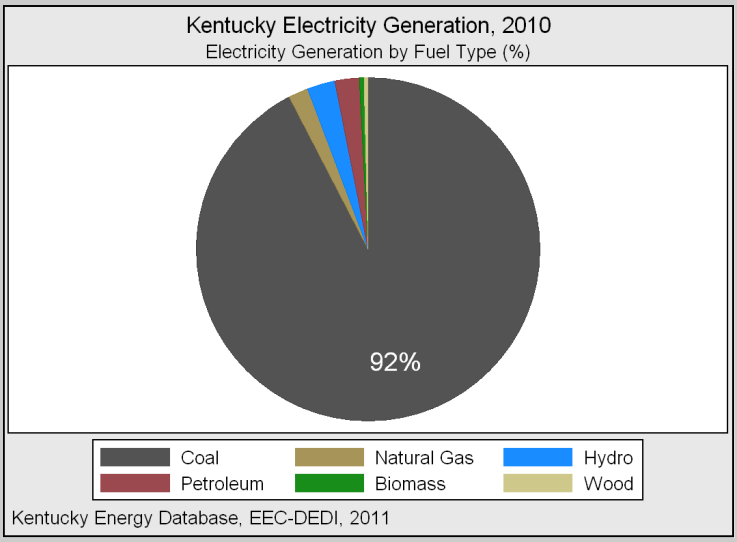
Generation

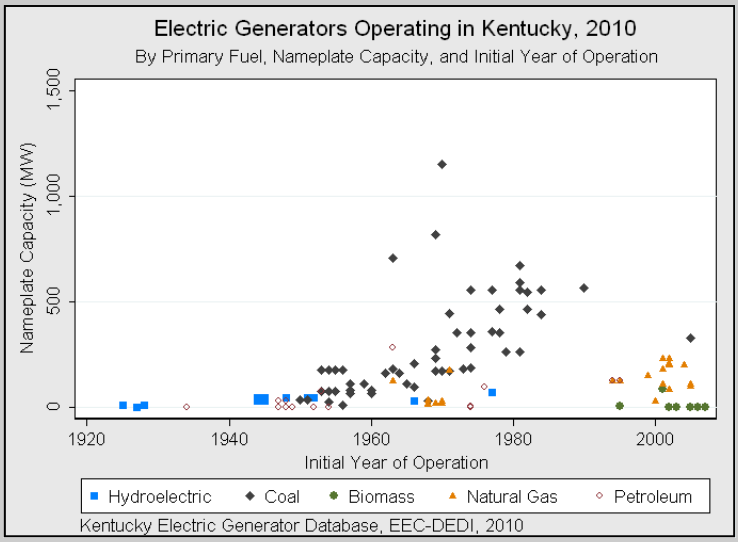
In 2010 there were 98,218 Gigawatt-hours of electricity (electric energy) produced in Kentucky. This total represented an 8% increase in total generation, compared with 2009. Ninety-two percent of this generation was produced by coal combustion, 3% from hydroelectric generation, 2% from petroleum and natural gas combustion respectively, and less than 1% from other renewable sources.

The variation between the percentage of capacity and electricity (electric energy) produced by the various energy sources is created because some types of generating plants operate more hours during the year than others. Coal plants are "base load" units which typically run 24 hours per day, 365 days per year. Currently, the natural gas and petroleum units in Kentucky are "peaking units" and only run when the demand for electricity is very high**. They function to rapidly increase or decrease electricity production to match "peak" demand. Existing hydroelectric facilities and other renewable generating units operate whenever their specific resource is available (which can be intermittent).

** There are natural gas combined cycle plants that are proposed to be built in Kentucky. These facilities would be considered base load plants because they will run a high percentage of the time compared to existing peaking plants.

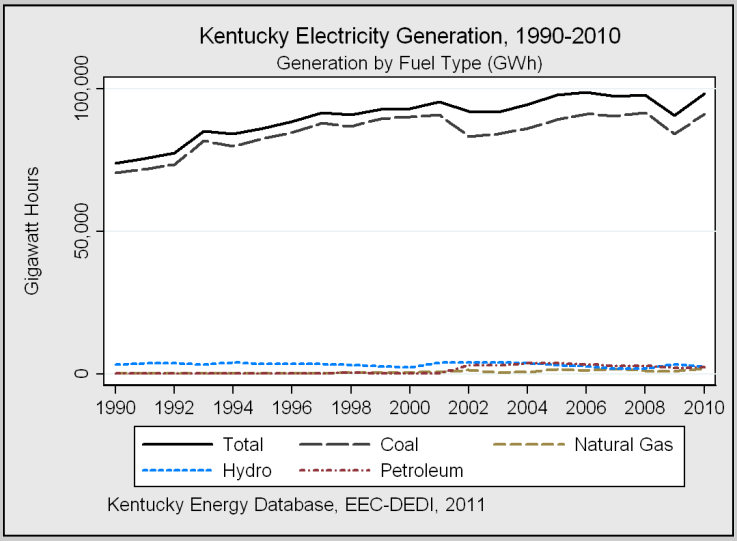
Kentucky Electricity Generation





Fuel Type	Gigawatt Hours	Percentage
Total	98,218	100%
Coal	91,054	92%
Hydro	2,580	3%
Petroleum	2,285	2%
Natural Gas	1,841	2%
Wood & Biomass	458	>1%

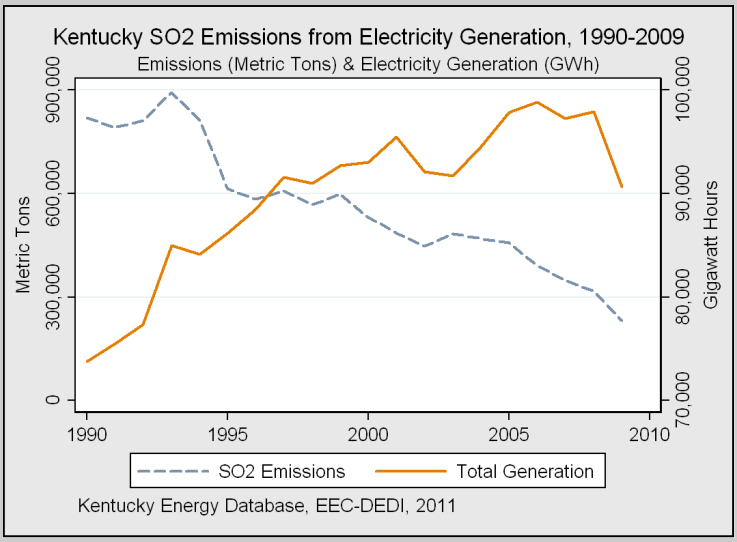
Primary Fuel	Average Unit Age	Average Unit Size
All Units	40	151 MW
Coal	42	300 MW
Natural Gas	17	112 MW
Petroleum	49	38 MW
Hydro	68	27 MW
Biomass	9	1 MW

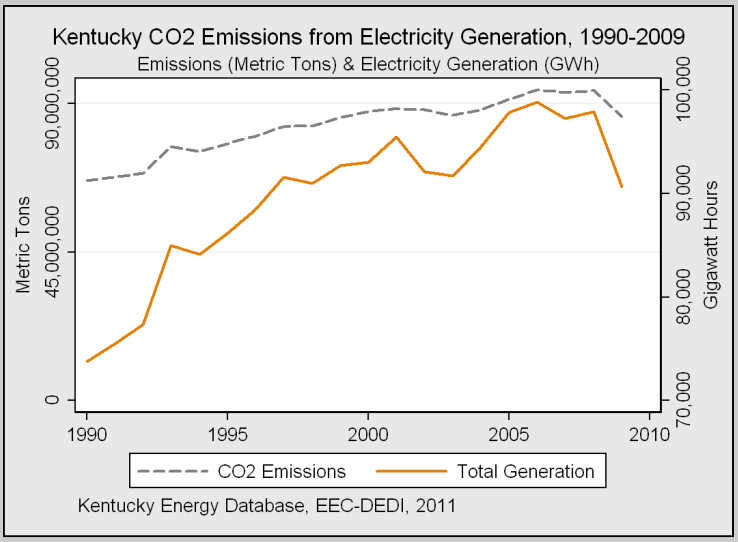


The Electric Power Sector in Kentucky generated 98,218 Gigawatt-hours of electricity in 2010. The super-majority of this generation was fueled by the combustion of coal and represented an 8% increase in total electricity generation, compared with 2009. Hydroelectric power was the next largest source of electricity production, accounting for 3% of total generation. Combustion of petroleum products, natural gas, wood products, and biomass comprised the remaining 4% of electricity generation in 2010.

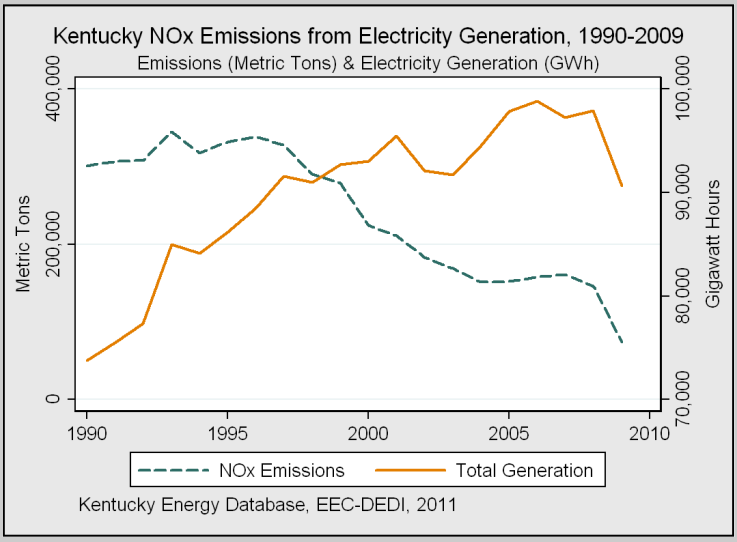
Coal fired, hydroelectric, and biomass fired generators provide all of the baseload electricity in Kentucky because of the low operating costs they enjoy. The coal fleet consists primarily of large generators that were constructed between the mid-1950s and 1990. Most of these plants have been retrofitted with environmental controls to meet air quality emissions standards but many may need further upgrades as the standards become more stringent. Peaking power, the additional electricity needed for short periods of high demand, is provided by natural gas and petroleum. Utilities satisfy these short periods of high demand with simple cycle natural gas or petroleum generators because they are relatively cheap to build, can rapidly add or subtract electricity to the grid, but have a significantly higher operating cost than baseload generators. These "peaking" generators account for approximately 24% of the generating capacity in Kentucky but provide less than 5% of the electricity.

Kentucky Electric Power Emissions





Emission	Metric Tons	Since 1990*
Carbon Dioxide	86,155,120	29%
Sulfur Dioxide	232,401	- 72%
Nitrogen Oxides	73,900	- 75%



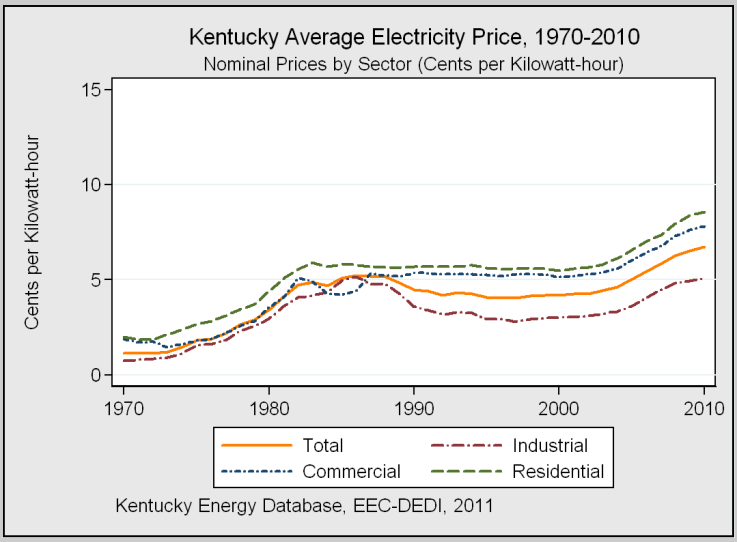
Sulfur Dioxide is a highly reactive gas and major pollutant that is monitored and regulated at the State and Federal level. In 2009, the Electric Power Sector of Kentucky emitted 232,401 metric tons of sulfur dioxide, representing a 27% decrease from 2008. Overall, the Electric Power Sector of Kentucky has reduced sulfur dioxide emissions by 72% since 1990.

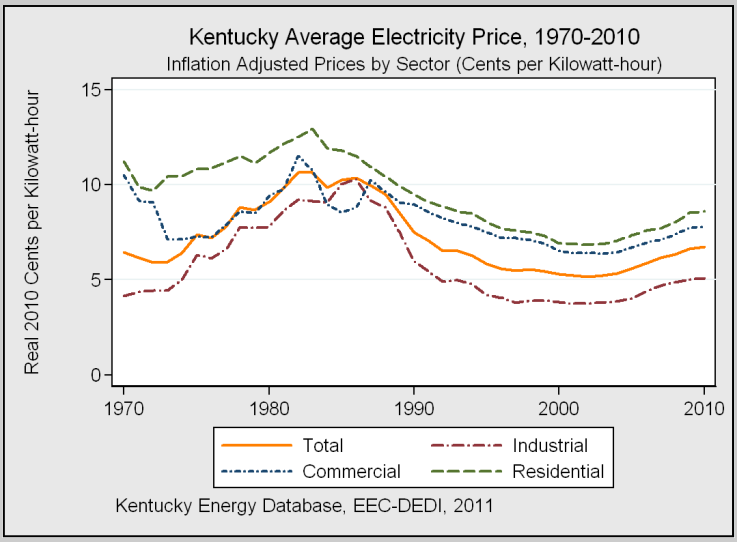
Nitrogen Oxides are a group of highly reactive gasses which are monitored and regulated at the State and Federal level. In 2009, the Electric Power Sector of Kentucky emitted 73,900 metric tons of nitrogen oxides, representing a 49% decrease from 2008. Overall, the Electric Power Sector of Kentucky has reduced the emission of nitrogen oxides by 75% since 1990.

Carbon Dioxide emissions from fossil fuel power plants have been monitored over time at the State and Federal level. In 2009, the Electric Power Sector of Kentucky emitted 86,155,120 metric tons of carbon dioxide. This amount represented a 8% decrease in electric power carbon dioxide emissions in the State, compared with 2008. Overall, the Electric Power Sector of Kentucky has increased carbon dioxide emissions by 29% since 1990.

* The last major amendments to the Clean Air Act were implemented in 1990. These amendments focused on National Ambient Air Quality Standards and the mechanisms which would ensure attainment and compliance with emission reduction targets. Subsequently, the emission of Sulfur Dioxide (SO_2) and Nitrogen Oxides (NO_x) from electric generating plants were regulated and scheduled for reduction. The dual display of electricity generation and regulated emissions indicates that over time, though electricity demand and generation have increased, the release of targeted pollutants has actually decreased. Therefore, both the aggregate emissions as well as intensity of emissions per Gigawatt-hour of criteria pollutants, such as Sulfur Dioxide and Nitrogen Oxides, have been decreasing in the Commonwealth since 1990. These reductions have been made through a combination of burning low sulfur coal and the installation of SO_2 Scrubbers and Select Catalytic Reduction (SCR) for NOx at coal-fired power plants in Kentucky.

Kentucky Electricity Prices





Sector	Rate/kWh	Since 1990
Average	$0.0675	+ 51%
Residential	$0.0858	+ 51%
Commercial	$0.0781	+ 45%
Industrial	$0.0507	+ 42%

* Prices and percent changes above are calculated and displayed in terms of nominal prices ($ US) for the period 1970-2010.

Sector	Real Rate/kWh	Since 1990
Average	$0.0675	- 10%
Residential	$0.0858	- 9%
Commercial	$0.0781	- 9%
Industrial	$0.0507	-15%

* Prices and percent changes above are calculated and displayed in terms of real, inflation-adjusted prices (Real $ US 2010) for the period 1970-2010.

Electricity usage in Kentucky is billed in terms of cents per kilowatt-hour of electricity consumed. Due to the nature of the different economic sectors, the price of electricity is not uniform across the economy of Commonwealth. As a result, each economic sector in Kentucky faces a different price for the consumption of electricity.

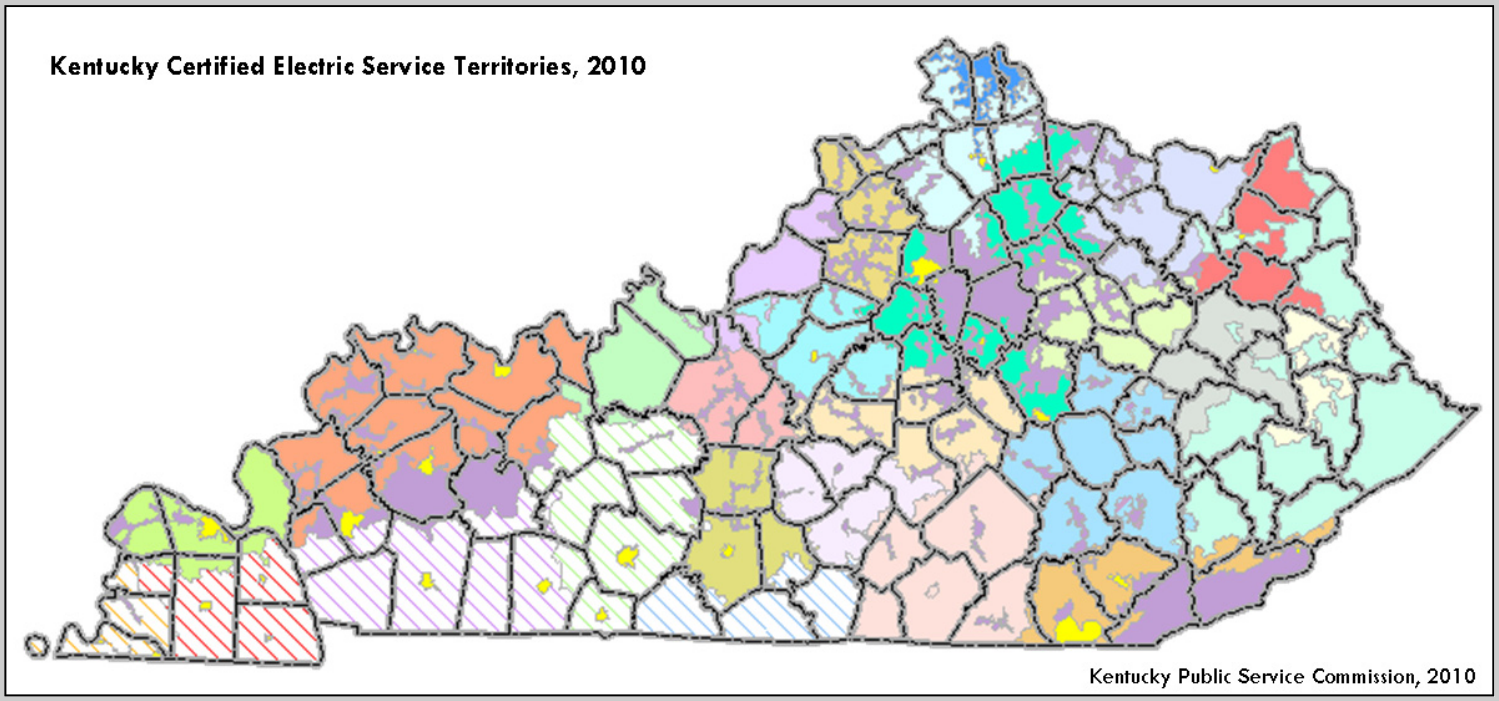
In 2010, the average price of electricity across economic sectors in Kentucky was $0.0675 per kilowatt-hour. This overall average price ranked Kentucky fourth lowest in the Country. The Residential Sector paid the highest price at $0.0858 per kilowatt-hour, followed by the Commercial Sector at $0.0781 per-kilowatt hour. The Industrial Sector faced a much lower price of electricity, paying on average $0.0507 per kilowatt-hour of consumption.

As displayed by historical data, the nominal price of electricity in Kentucky for the period 1990-2002 remained very stable. Two major factors, predominantly coal-fired electricity and a consistent, low price of coal, maintained this price stability in the Commonwealth. However, since 2002 the price of fossil fuels in general (as well as the price of coal, specifically) have been increasing, causing upward pressure on the price of electricity in Kentucky.

Adjusting for inflation over time, the trend(s) of electricity prices in Kentucky between 1970 and 2010 is notably different from the adjacent, nominal analysis. Resetting historical price data to inflation-adjusted 2010 values, the price of electricity in real economic terms in Kentucky actually fell from 1980 through 2002. Central to explaining this period of falling, real prices are the facts that Kentucky used coal primarily to generate electricity during this time, and that the inflation-adjusted price of coal for the Electric Power Sector fell during this period.

Yet, since 2002 the real price of electricity in Kentucky in inflation-adjusted dollars has been increasing. This period of eight consecutive years of price increases is divergent from the trend of the previous 20 years. A major factor affecting the upward trajectory of real electricity prices in Kentucky since 2002 is undoubtedly the rising, real price of steam coal in the Electric Power Sector.

Kentucky Electric Service Areas

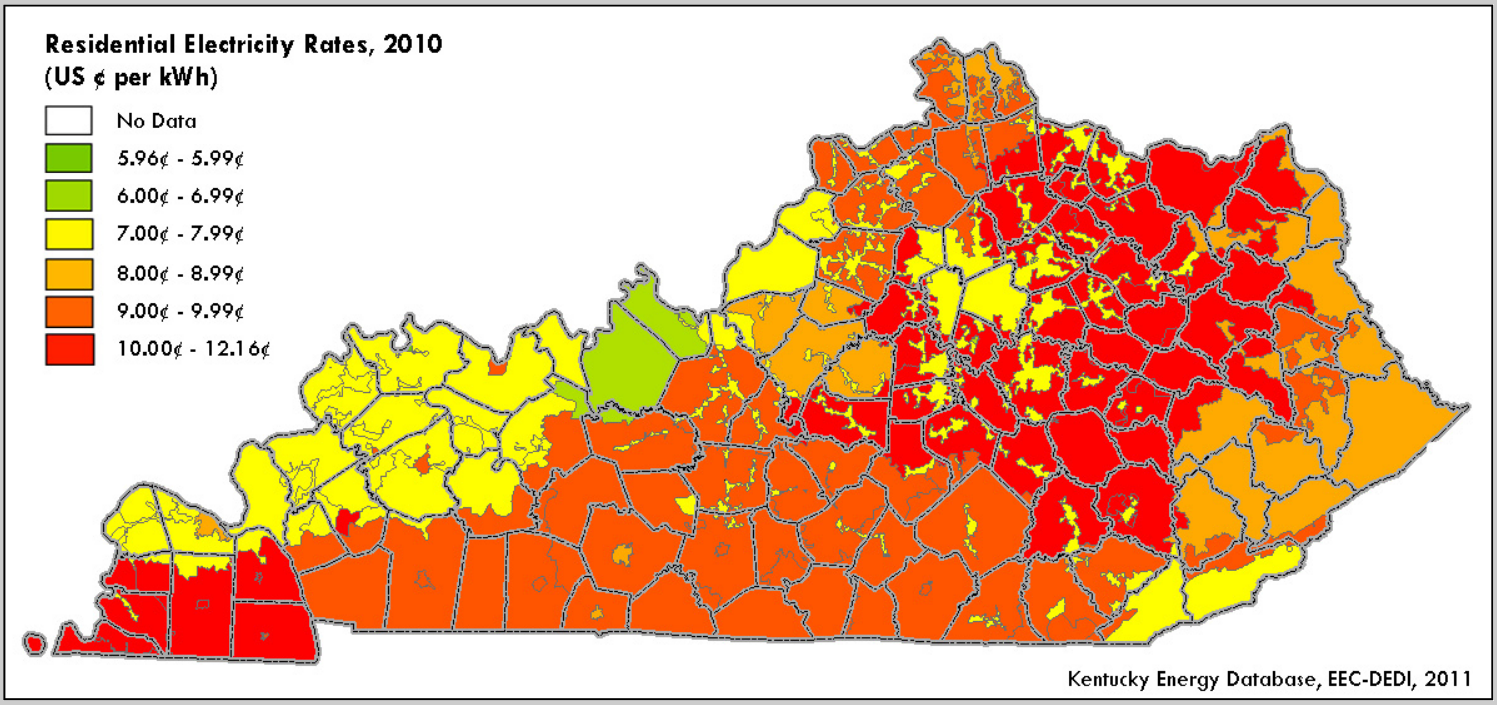


All Municipal Utilities		Kentucky Utilities	
Big Sandy RECC		Licking Valley RECC	
Blue Grass ECC		Louisville Gas & Electric	
Clark ECC		Meade County RECC	
Cumberland Valley RECC		Nolin RECC	
Duke Energy Kentucky		Owen ECC	
Farmers RECC		Pennyrile RECC**	
Fleming-Mason ECC		Salt River ECC	
Grayson RECC		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-Owned Utilities (MOU), or Rural Electric Cooperative Corporations (RECC). Municipal Utilities and TVA Distributors are not subject to Kentucky Public Service Commission regulation.

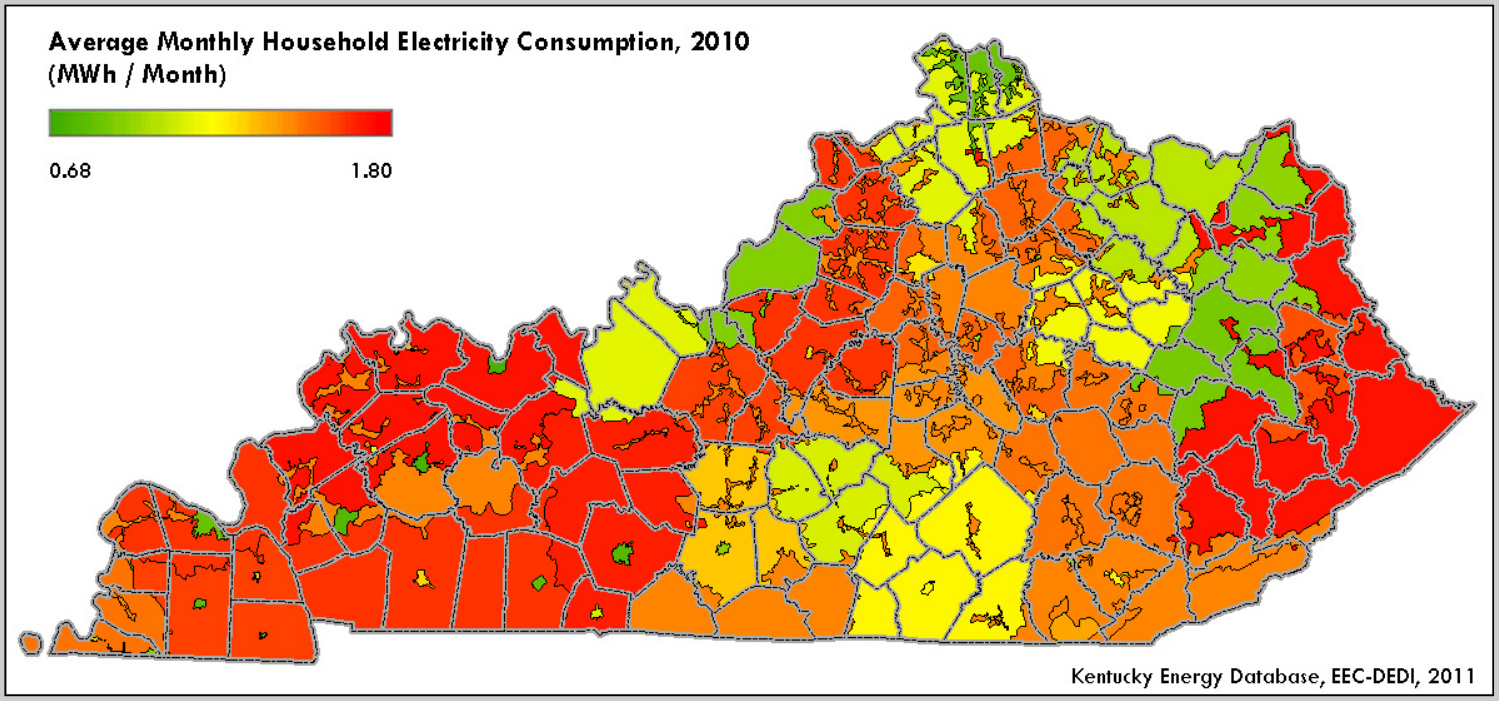
** TVA Distributor

Residential Electricity Prices, 2010



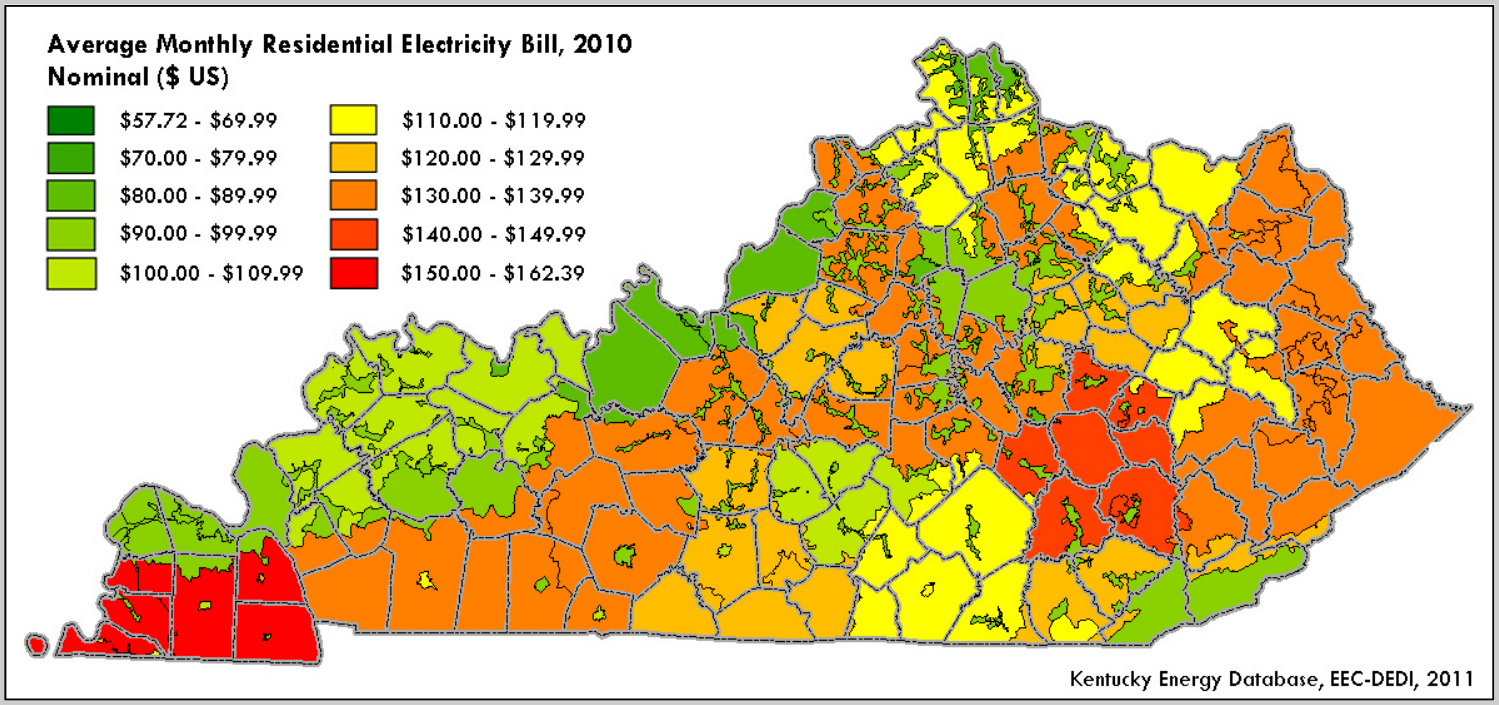
Henderson City Utility Commission	5.96¢	City of Owensboro	9.30¢
City of Paris	6.83¢	Madisonville Municipal Utilities	9.35¢
City of Nicholasville	6.95¢	City of Jellico	9.36¢
Meade County R.E.C.C	6.98¢	Shelby Energy Co-op, Inc	9.36¢
Kenergy Corporation	7.03¢	Warren R.E.C.C	9.38¢
Jackson Purchase Energy Corporation	7.07¢	Tri-County Electric Member Corporation	9.41¢
City of Frankfort	7.11¢	South Kentucky R.E.C.C	9.46¢
City of Benham	7.15¢	Nolin R.E.C.C.	9.50¢
City of Berea Municipal Utility	7.27¢	City of Murray	9.55¢
City of Bardstown	7.48¢	City of Glasgow	9.65¢
Kentucky Utilities Company	7.54¢	Farmers R.E.C.C.	9.82¢
Barbourville Utility Commission	7.78¢	Pennyrile R.E.C.C.	9.84¢
Louisville Gas & Electric Company	7.98¢	Big Sandy R.E.C.C.	9.89¢
Williamstown Utility Commission	8.10¢	Owen Electric Coop Inc	9.96¢
Duke Energy Kentucky, Inc.	8.26¢	City of Fulton	10.01¢
City of Falmouth	8.47¢	City of Mayfield Plant Board	10.05¢
Corbin City Utilities Commission	8.60¢	Blue Grass E.C.C.	10.05¢
Kentucky Power Company	8.64¢	Fleming-Mason Energy Coop Inc	10.06¢
City of Franklin	8.69¢	Clark Energy Coop Inc	10.10¢
City of Paducah	8.74¢	City of Benton	10.28¢
Salt River Electric Coop Corporation	8.79¢	City of Princeton	10.38¢
City of Bowling Green	8.94¢	Inter County Energy Cooperative Corporation	10.43¢
City of Bardwell	9.04¢	Licking Valley R.E.C.C.	10.45¢
City of Hopkinsville	9.07¢	Jackson Energy Coop Corp	10.75¢
Taylor County R.E.C.C	9.08¢	City of Hickman	10.85¢
City of Providence	9.11¢	West Kentucky R.E.C.C.	11.11¢
Cumberland Valley R.E.C.C	9.17¢	City of Vanceburg	11.58¢
City of Olive Hill	9.20¢	Grayson R.E.C.C.	11.67¢
City of Russellville	9.21¢	Hickman-Fulton Counties R.E.C.C.	12.16¢

Residential Electricity Usage, 2010



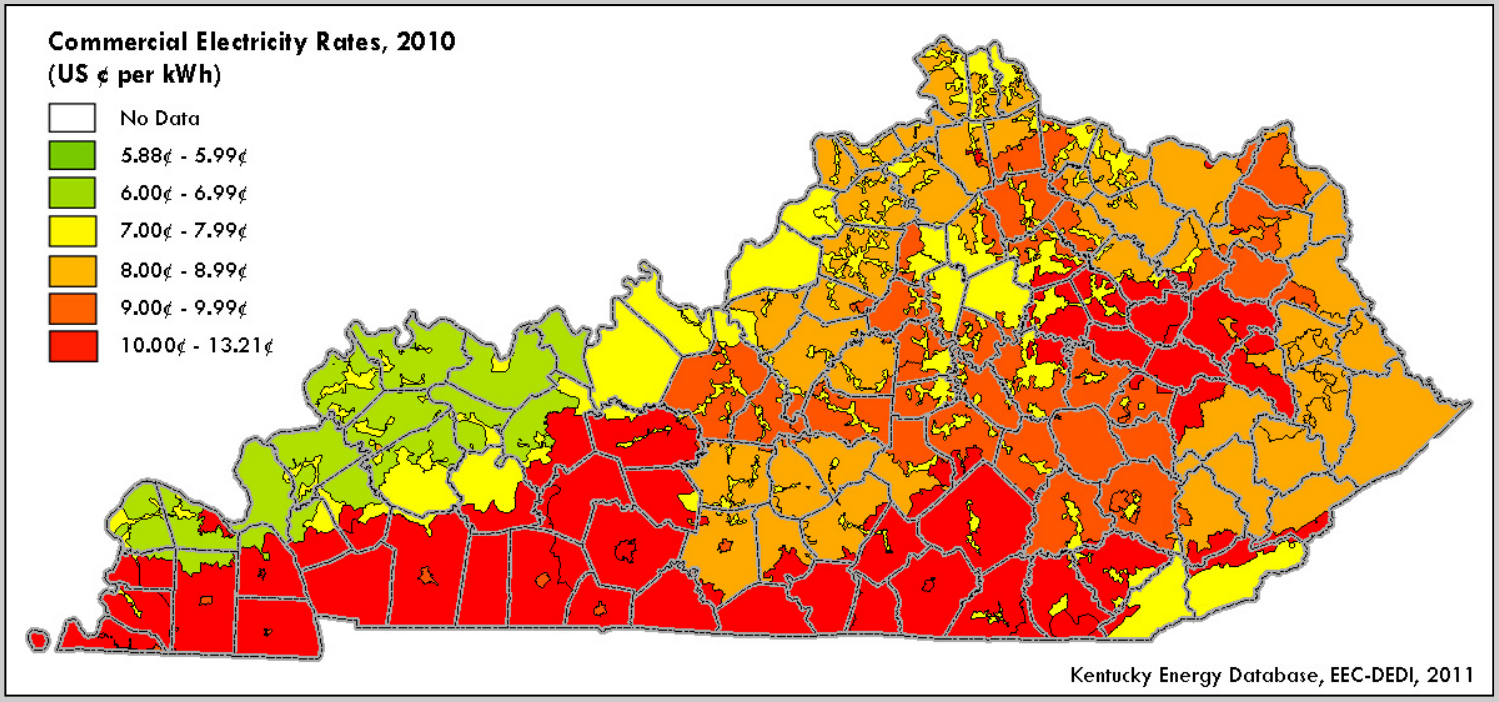
City of Falmouth	0.68	South Kentucky R.E.C.C.	1.20
City of Bardwell	0.78	Barbourville Utility Commission	1.20
City of Owensboro	0.94	City of Frankfort	1.21
Madisonville Municipal Utilities	0.98	City of Hopkinsville	1.23
City of Princeton	1.02	City of Bardstown	1.23
City of Bowling Green	1.04	City of Berea Municipal Utility	1.23
City of Murray	1.04	City of Benton	1.23
City of Mayfield Plant Board	1.05	Farmers R.E.C.C.	1.24
City of Russellville	1.05	Henderson City Utility Commission	1.24
City of Paducah	1.07	City of Jellico	1.25
Duke Energy Kentucky, Inc.	1.08	Inter County Energy Coop Corporation	1.28
Licking Valley R.E.C.C.	1.09	Tri-County Electric Member Corporation	1.32
Louisville Gas & Electric Company	1.10	Kentucky Utilities Company	1.33
City of Vanceburg	1.10	Cumberland Valley R.E.C.C.	1.33
City of Glasgow	1.12	Jackson Energy Coop Corporation	1.33
City of Fulton	1.12	Hickman-Fulton Counties R.E.C.C.	1.34
Grayson R.E.C.C.	1.12	Blue Grass Energy Coop Corporation	1.35
City of Paris	1.13	Big Sandy R.E.C.C.	1.36
Corbin City Utilities Commission	1.13	West Kentucky R.E.C.C.	1.36
City of Nicholasville	1.14	Nolin R.E.C.C.	1.37
Fleming-Mason Energy Coop Inc	1.14	Pennyrile Rural Electric Cooperative	1.40
City of Olive Hill	1.16	Shelby Energy Co-op, Inc	1.40
City of Franklin	1.17	Jackson Purchase Energy Corporation	1.41
Taylor County R.E.C.C.	1.18	Salt River Electric Coop Corporation	1.41
Owen Electric Coop Inc	1.18	Williamstown Utility Commission	1.43
City of Hickman	1.19	Warren R.E.C.C.	1.45
Meade County R.E.C.C.	1.19	Kenergy Corporation	1.50
City of Providence	1.19	Kentucky Power Company	1.52
Clark Energy Coop Inc	1.19	City of Benham	1.80

Residential Electricity Bill, 2010



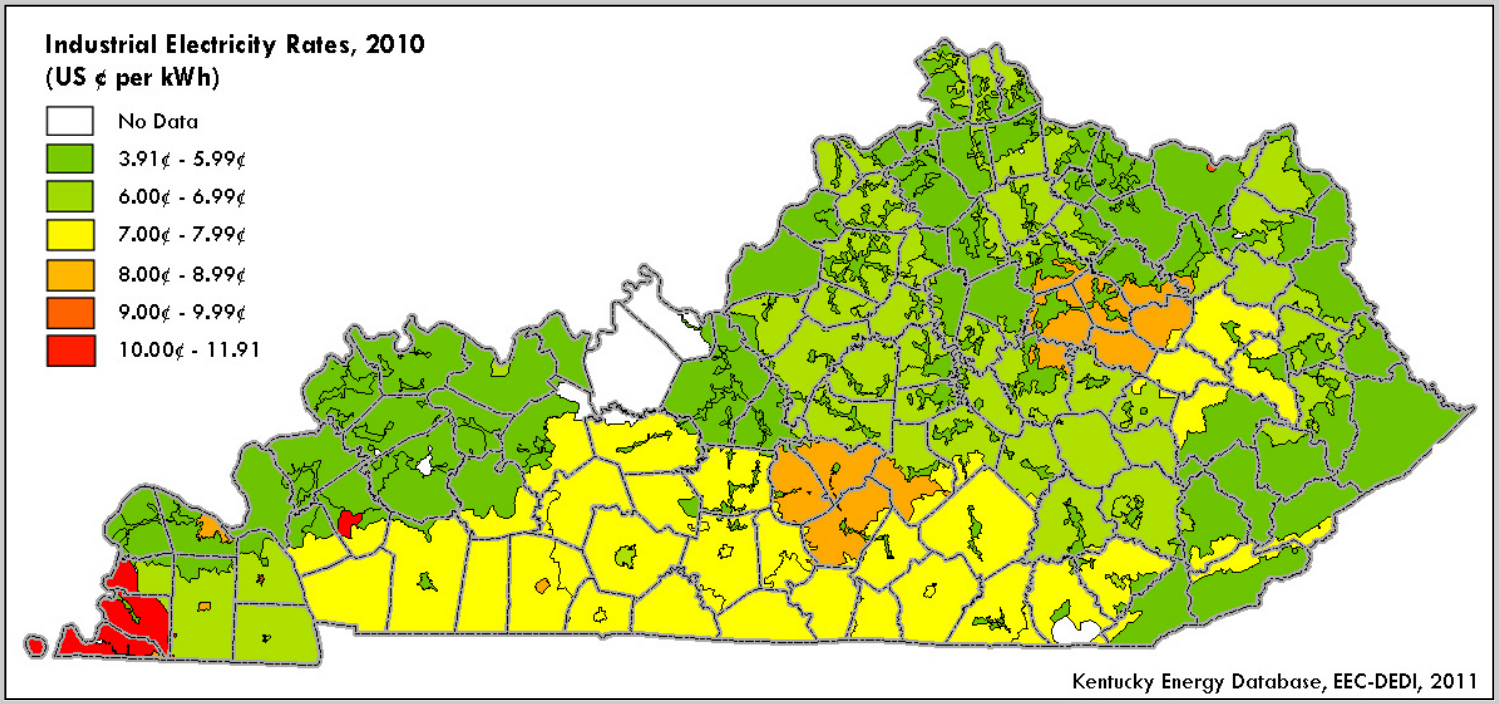
City of Falmouth	$57.72	City of Hopkinsville	$111.21
City of Bardwell	$70.25	City of Fulton	$112.27
Henderson City Utility Commission	$74.14	South Kentucky R.E.C.C.	$113.34
City of Paris	$77.07	Licking Valley R.E.C.C.	$113.80
City of Nicholasville	$78.89	Fleming-Mason Energy Coop Inc	$114.63
Meade County R.E.C.C.	$82.75	Williamstown Utility Commission	$115.90
City of Frankfort	$85.79	City of Jellico	$117.01
Louisville Gas & Electric Company	$87.50	Owen Electric Coop Inc	$117.88
City of Owensboro	$87.57	Clark Energy Coop Inc	$120.17
Duke Energy Kentucky, Inc.	$89.10	Farmers R.E.C.C.	$121.25
City of Berea Municipal Utility	$89.44	Cumberland Valley R.E.C.C.	$121.87
City of Bardstown	$91.70	Tri-County Electric Member Corporation	$123.91
Madisonville Municipal Utilities	$91.94	Salt River Electric Coop Corporation	$124.17
City of Bowling Green	$92.64	City of Benton	$126.52
Barbourville Utility Commission	$93.45	City of Vanceburg	$127.79
City of Paducah	$93.88	City of Hickman	$128.67
City of Russellville	$97.12	City of Benham	$129.03
Corbin City Utilities Commission	$97.49	Nolin R.E.C.C.	$130.37
City of Murray	$99.77	Grayson R.E.C.C.	$131.00
Jackson Purchase Energy Corporation	$99.92	Shelby Energy Co-op, Inc	$131.43
Kentucky Utilities Company	$99.95	Kentucky Power Company	$131.69
City of Franklin	$102.06	Inter County Energy Coop Corporation	$133.20
City of Mayfield Plant Board	$105.19	Big Sandy R.E.C.C.	$134.09
Kenergy Corporation	$105.36	Blue Grass Energy Coop Corporation	$135.67
City of Olive Hill	$106.28	Warren R.E.C.C.	$136.41
City of Princeton	$106.37	Pennyrile Rural Electric Cooperative	$137.23
Taylor County R.E.C.C.	$106.85	Jackson Energy Coop Corporation	$143.20
City of Glasgow	$107.94	West Kentucky R.E.C.C.	$151.65
City of Providence	$108.19	Hickman-Fulton Counties R.E.C.C.	$162.39

Commercial Electricity Prices, 2010



Henderson City Utility Commission	5.88¢	City of Franklin	9.38¢
Jackson Purchase Energy Corporation	6.05¢	Blue Grass Energy Coop Corporation	9.38¢
Kenergy Corporation	6.79¢	City of Hopkinsville	9.57¢
Meade County R.E.C.C.	7.16¢	Jackson Energy Coop Corporation	9.58¢
Louisville Gas & Electric Company	7.16¢	City of Mayfield Plant Board	9.69¢
City of Berea Municipal Utility	7.20¢	Grayson R.E.C.C.	9.78¢
City of Owensboro	7.24¢	City of Murray	9.78¢
City of Benham	7.27¢	City of Russellville	9.82¢
Kentucky Utilities Company	7.31¢	Inter County Energy Coop Corporation	9.85¢
Madisonville Municipal Utilities	7.42¢	City of Glasgow	9.93¢
Duke Energy Kentucky, Inc.	7.52¢	City of Benton	10.01¢
Barbourville Utility Commission	7.57¢	Licking Valley R.E.C.C.	10.10¢
City of Bardstown	7.59¢	Cumberland Valley R.E.C.C.	10.11¢
City of Nicholasville	7.65¢	City of Bowling Green	10.11¢
City of Frankfort	7.96¢	Williamstown Utility Commission	10.20¢
City of Paris	8.01¢	Clark Energy Coop Inc	10.30¢
Shelby Energy Co-op, Inc	8.17¢	City of Paducah	10.35¢
Taylor County R.E.C.C.	8.25¢	Tri-County Electric Member Corporation	10.48¢
Fleming-Mason Energy Coop Inc	8.35¢	Warren R.E.C.C.	10.69¢
City of Falmouth	8.47¢	City of Olive Hill	10.86¢
City of Providence	8.51¢	South Kentucky R.E.C.C.	10.90¢
Salt River Electric Coop Corporation	8.79¢	Pennyrile Rural Electric Cooperative	10.94¢
Owen Electric Coop Inc	8.84¢	City of Bardwell	11.13¢
Kentucky Power Company	8.88¢	City of Jellico	11.20¢
Corbin City Utilities Commission	8.92¢	City of Vanceburg	11.86¢
Farmers R.E.C.C.	8.98¢	City of Princeton	12.03¢
Big Sandy R.E.C.C.	9.00¢	West Kentucky R.E.C.C.	12.77¢
Nolin R.E.C.C.	9.09¢	City of Hickman	13.17¢
City of Fulton	9.34¢	Hickman-Fulton Counties R.E.C.C.	13.20¢

Industrial Electricity Prices, 2010



Kenergy Corporation	3.91¢	Duke Energy Kentucky, Inc.	6.58¢
City of Benham	4.05¢	City of Owensboro	6.68¢
Henderson City Utility Commission	4.07¢	Inter County Energy Coop Corporation	6.69¢
Corbin City Utilities Commission	4.45¢	Williamstown Utility Commission	6.71¢
Tennessee Valley Authority	4.55¢	Jackson Energy Coop Corporation	6.71¢
Electric Energy Inc	4.77¢	City of Murray	6.86¢
Owen Electric Coop Inc	4.82¢	West Kentucky R.E.C.C.	6.89¢
City of Bardstown	5.04¢	City of Glasgow	7.14¢
Jackson Purchase Energy Corporation	5.09¢	City of Franklin	7.24¢
Louisville Gas & Electric Company	5.38¢	Tri-County Electric Member Corporation	7.26¢
Kentucky Utilities Company	5.57¢	Farmers R.E.C.C.	7.28¢
Kentucky Power Company	5.64¢	Licking Valley R.E.C.C.	7.41¢
City of Hopkinsville	5.66¢	Cumberland Valley R.E.C.C.	7.42¢
Nolin R.E.C.C.	5.79¢	Pennyrile Rural Electric Cooperative	7.50¢
Fleming-Mason Energy Coop Inc	5.80¢	Warren Rural Elec Coop Corporation	7.51¢
City of Nicholasville	5.81¢	South Kentucky R.E.C.C.	7.65¢
City of Paris	5.85¢	City of Russellville	8.21¢
City of Bowling Green	6.00¢	City of Fulton	8.38¢
Grayson R.E.C.C.	6.11¢	Clark Energy Coop Inc	8.39¢
City of Frankfort	6.17¢	Taylor County R.E.C.C.	8.50¢
Blue Grass Energy Coop Corporation	6.25¢	City of Mayfield Plant Board	8.72¢
Barbourville Utility Commission	6.26¢	City of Paducah	8.74¢
Big Sandy R.E.C.C.	6.36¢	City of Benton	9.28¢
Salt River Electric Coop Corporatoin.	6.37¢	City of Vanceburg	9.44¢
Shelby Energy Co-op, Inc	6.40¢	City of Princeton	10.15¢
City of Berea Municipal Utility	6.49¢	Hickman-Fulton Counties R.E.C.C.	11.97¢

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and

Yang Luo,

Graduate Student Intern, University of Kentucky

Basic Methodology

Purpose:

In December 2009, Kentucky Energy and Environment Cabinet Secretary Len Peters directed the Department for Energy Development and Independence (DEDI) to construct a comprehensive database concerning energy, environmental, and economic statistics for the purposes of quantitative analysis and policy interpretation. The outcome of this effort is the Kentucky Energy Database, a summary time series data set encapsulating energy related statistics for the Commonwealth of Kentucky for the period 1950 to 2010. An outgrowth of this undertaking is the *Kentucky Energy Profile 2011*, which utilizes the summary statistics of the Kentucky Energy Database to provide an annual snapshot of energy consumption and production within Kentucky. The *Kentucky Energy Profile 2011* exists for the following three purposes:

1. To support the Commonwealth Energy Assurance Plan that identifies potential threats to energy systems in the Commonwealth.
2. To serve as an impartial repository of energy statistics for the general public, researchers, and policy makers.
3. To provide an understanding of the dynamics of energy consumption and production within the Commonwealth.

Construction:

The foundation of the *Kentucky Energy Profile 2011*, the Kentucky Energy Database, consists of one summary time series data set and four supporting multidimensional panel data sets, each with a different unit of observation. The majority of the variables located in this database were acquired from publically available resources, primarily the Department of Energy State Energy Data System (SEDS). This data system is produced and maintained by the U.S. Energy Information Administration (EIA).

However, the SEDS database does not contain many critical variables - particularly economic, socioeconomic, and environmental - required for a holistic analysis of energy systems. Accordingly, the Kentucky Energy Database was supplemented with data sets from the following United States Government agencies: Federal Energy Regulatory Commission (FERC), National Renewable Energy Laboratory (NREL), Bureau of Economic Analysis (BEA), National Oceanic Atmospheric Administration (NOAA), U.S. Census Bureau, U.S. Census of Manufacturers, Environmental Protection Agency (EPA), Mine Safety and Health Administration (MSHA), and the Bureau of Labor Statistics (BLS).

Following the construction of the Kentucky Energy Database, DEDI analysts were able to conduct specified research involving economic and energy related issues of the Commonwealth. The collation of data provided a platform on which summary statistics and time series data could be easily generated to answer questions of interest. Such information could then be transformed into accessible tables and graphics for general representation and distribution.

Production:

Incorporating the capabilities of the Kentucky Energy Database, DEDI analysts were able to produce an energy profile for the Commonwealth, which became the *Kentucky Energy Profile 2011*. This document intends to function as a comprehensive assessment of energy consumption and production within the state by supplying detailed summary statistics and identifying time series trends. The data and topics included within the document are represented through quantitative tables, analytic graphics and maps, as well as written analysis.

For a more detailed explanation of the Kentucky Energy Database, please examine the "Kentucky Energy Database Methodology" available in PDF format, under the Data & Modeling Section of DEDI Programs (energy.ky.gov).

Kentucky Energy Profile 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% 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)

Coal Field: 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 69kV 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

Kentucky Energy Profile 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 (SO_2), 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)

Kentucky Energy Profile 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.

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)

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