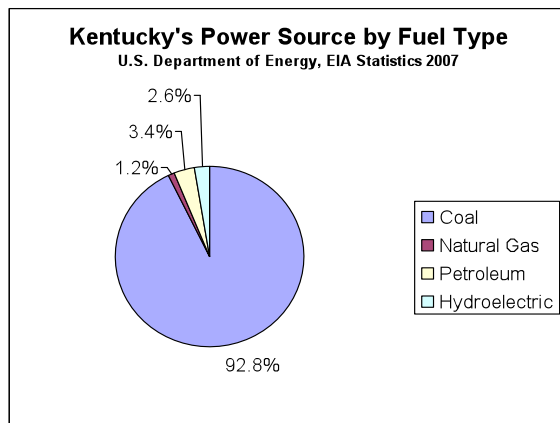


# Kentucky Utilities and Coal Dependence

In this document, you can expect to find:

- A description of the extent of national and state dependence on coal for electric energy;
- Details about recent upward trends in utility costs;
- An estimate of remaining years of recoverable Kentucky coal reserves;
- The average Kentucky household's energy expenditure within the home;
- An assessment of the burden on low-income Kentucky families facing rising utilities costs;
- And, an exploration of the massive impact of future carbon constraint policy on housing, buildings and our continued state reliance on coal electricity.

## KENTUCKY'S COAL ENERGY ADDICTION



93% of Kentucky's electricity is fueled by coal. In comparison, the nation relies on coal for half of all electric energy.<sup>1</sup>

Not only are we heavily reliant on coal for electricity, but we also consume a lot of energy. Kentuckians use 55% more energy than the national average, all sectors combined. This makes our state 3<sup>rd</sup> highest in terms of energy intensity (kilowatt hours used per customer).<sup>2</sup>

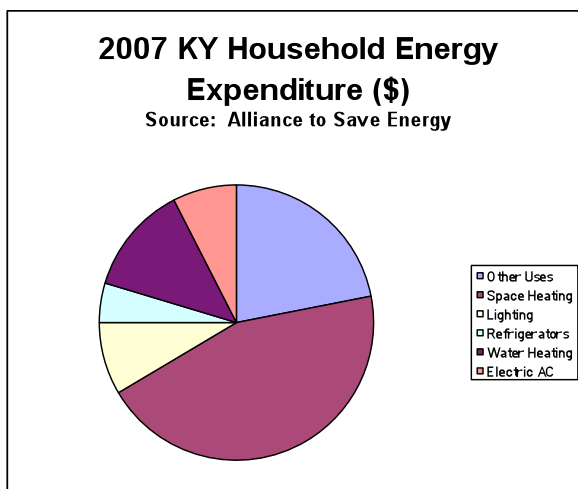
Kentucky's average residential electric rate is about one-third less than the national average. We use so much electricity, however, that our electric bills are not as low by comparison. For example, Kentucky's schools spend 7% more per student on electricity than the national average.<sup>3</sup>

Historically low electricity prices enjoyed by Kentuckians are diminishing. State residential electricity costs have risen more than 30% since 2006. While there are no documented predictions of how much costs may rise in the near future, there is agreement that they will continue to do so. Kentucky's energy demand is simultaneously increasing. In recent years, the statewide annual demand for electricity has risen by 2.3% each year, twice the national average.<sup>4</sup>

The coal we use today won't be here forever. Of the largest three coal supply areas in Eastern Kentucky, scientists from the Kentucky Geological Survey estimated in 2004 that an average of 55% of accessible reserves remains.<sup>5</sup> It is difficult to estimate the number of mining years remaining at current coal production levels in Kentucky. However, based on available regional data for the Appalachian coal mining area (includes Eastern Kentucky but not Western Kentucky), at the most, there is 50 years of coal remaining.<sup>6</sup>

In sum, Kentuckians are heavily dependent on coal for electric energy, use a lot of electricity per person compared to other states, and continue to increase demand as a group in the face of rising prices and dwindling resources.

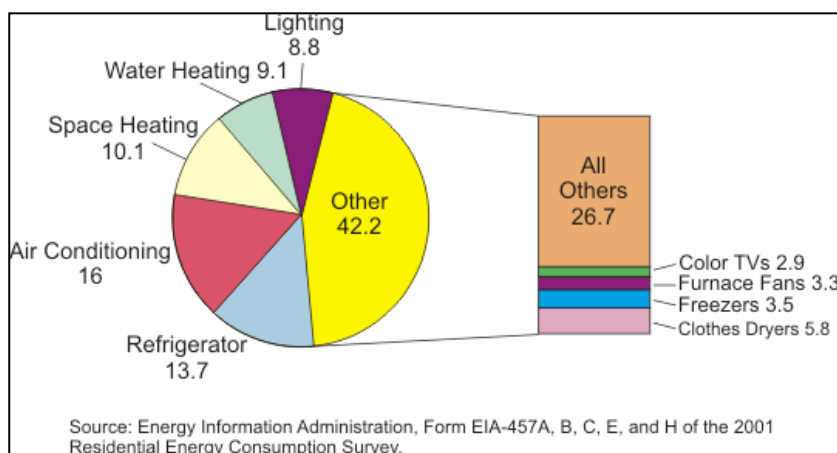
## KENTUCKY FAMILIES' ENERGY EXPENDITURES



45% of Kentucky households rely on electricity as a sole source of energy in the home. These families spent an average of \$720 annually on heating costs.<sup>7</sup> In terms of money spent on heating and cooling systems combined, Kentucky residents pay about double the national average, in large part because of home and system inefficiencies contribute to high usage. Kentuckians apply 51% of total energy expenditures to heating and cooling costs, while the average U.S. resident spends about 26% of total energy costs in these two areas.

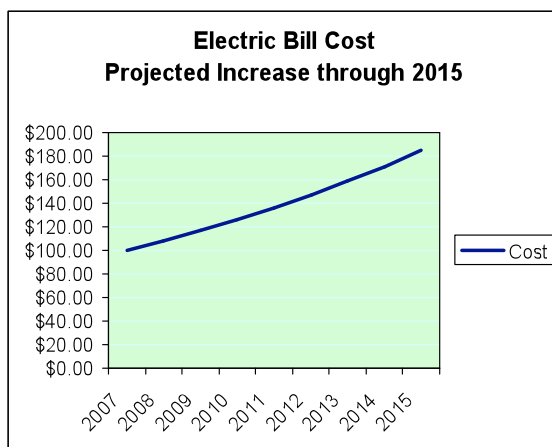
Kentuckians, considering all fuel sources, spend an average of \$2312 annually on home energy costs. This represents a very high cost burden for low-income families. For example, for an individual living at the federal poverty level, this represents more than 22% of their income. For a family of four living at the federal poverty level, this amount is 11% of their income.<sup>8</sup>

## National Average, Household Energy Expenditures



The number of applications and of households helped through the Low-Income Heating and Energy Assistance Program (LIHEAP) demonstrates the vast need that Kentucky families have for assistance with rising energy costs. The program is federally funded, but administered at the state level. In order to be eligible, a household must have an income at 130% of the federal poverty level or lower. In other words, an individuals cannot make more than \$13,520 annually. In 2006-07, of 240,000 state requests, 223,828 households received LIHEAP funds for assistance with energy bills. LIHEAP administrators estimate that many more eligible and needy households do not apply because they hear public announcements shortly after the program opens that the funds have already been used for the season.<sup>9</sup>

## IMPACT OF RISING UTILITY COSTS IN A CARBON-CONSTRAINED FUTURE



If energy costs continue to increase at the recent rate (5-8% per year), energy will simply become more unaffordable. At today's prices and assuming no universal increase in the productions costs of coal-based electricity (such as a carbon tax) and 0% change in demand, at this rate increase pace, a \$100 monthly bill would cost \$185.37—almost double—by 2015!

### Commercial and Industrial Buildings

On average, buildings and homes use 76% of all electricity generated and 48% of total energy consumption.<sup>10</sup> In Kentucky, the majority of the electricity generated is used by the industrial sector, which is 427% more energy intensive than the national average.<sup>11</sup> Due to tax subsidized electricity that makes rates for industries very low in the state, energy intensive industries are attracted to Kentucky. Thus, improving energy efficiency in industrial buildings and operations, as well as offering renewable sources by which to power this sector will greatly reduce electricity demand in Kentucky. There has been very little state financial or legislative investment in this area to date. Today, there are minimal standards for energy efficiency in Kentucky's building codes and no state requirement for utilities to have a renewable energy portfolio.<sup>12</sup>

### Homeownership

Kentucky has one of the higher homeownership rates, however a large percentage of these homeowners live in older energy inefficient homes and often do not have the resources to make the needed improvements. Many families are falling behind in their mortgage payments due to the trend of continually increasing home energy costs. As mentioned above, Low-Income Heating and Energy Assistance Program funds from the federal government used to assist families with energy bills fall short of the need every year. Often, state administrators run out of funding within 1 month of opening the program. In terms of weatherization assistance, there were only funds to offer 2255 out of 3380 applying households the money for needed improvements. Again, the need to invest in improving the efficiency of low-income homeowners remains largely underfunded.<sup>13</sup>

## **Rental—Public and Non-subsidized Units**

Approximately 24,000 Kentucky households live in public housing units. On average 30 years old, most of the units are in disrepair and very energy inefficient. The majority (62%) living in these units are elderly or disabled folks on a fixed income.<sup>14</sup> An additional quarter of these households are comprised of low-income families with children.<sup>15</sup> Renters units supported through section 8 cannot afford to pay rising utility costs a limited budget. If utilities in rental units are covered by property management, often the cost increase to managerial budgets causes reductions in ongoing maintenance. Investment into improved efficiency of these units will greatly help low-income families and small business property owners, struggling today to make ends meet, to face the coming increases in energy costs without falling more deeply into poverty.

Thousands of low-income Kentuckians live in extremely energy-inefficient rental units without any public assistance. These renters have very little protection as Kentucky has very few tenant rights and no code requirements to ensure even the basic level of energy efficiency. Improved energy efficient building codes and code enforcement (the majority of rural Kentucky has no building code enforcement for new or existing structures and even fewer have code enforcement for existing rental units) could be used as a tool to improving the rental standards across the state.

## **The Cost of A Carbon-Constrained Future**

Congress is considering proposals to reduce greenhouse gas pollution in the U.S. right now. The basic idea behind the two main proposals, listed below, is that if polluting becomes more expensive, companies will be forced either to reduce emissions or to pay more. There are three primary policies under consideration at the federal level that would do just that: a carbon tax, carbon capture and storage and a cap-and-trade pollution trading market.<sup>16</sup>

If the a tax is implemented at \$15 per ton of carbon equivalent emissions, at today's emission levels, **Kentucky's coal-fired electric plants would face nearly \$2.25 billion in additional costs.** Under a cap-and-trade system, Kentucky plants would be forced to implement cleaner technology or to buy permits in an open market in exchange for higher than allowable levels of carbon. Both scenarios will generate between \$50 billion to \$300 billion in payments from industries for pollution at the national level. While it is difficult to estimate an exact cost increase, both scenarios will ultimately mean the cost of coal-fired electricity will be drastically increased.

Regardless of which mechanism the federal government employs to reduce carbon, one thing is clear. Unless we work to change our state's energy portfolio, Kentucky's low-income families, already strapped by rising utility costs today, will be severely impacted by additional coal-based energy burdens to come. Thus, consumers entirely dependent on coal for electricity, including heating and cooling, remain very vulnerable to a carbon-constrained future.

## REFERENCES

<sup>1</sup> Energy Information Administration State Profile of Kentucky. Calculated from consumption information provided. Excel data sheets available: [http://tonto.eia.doe.gov/state/state\\_energy\\_profiles.cfm?sid=KY](http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=KY).

<sup>2</sup> Kentucky Public Service Commission (KPSC). 2008 Energy Watch Special Edition. Available: <http://energy.ky.gov/nr/rdonlyres/6bd66312-4950-4312-aaf7-263e70a58a4a/0/specialeditionelectric12008.pdf>.

<sup>3</sup> Commonwealth of Kentucky. "Kentucky's Energy Future: A Comprehensive Energy Strategy." Published under Governor Fletcher, 2007.

<sup>4</sup> KPSC.

<sup>5</sup> Kentucky Geological Survey Report. "Economically Recoverable Coal." Note: The KGS report estimations of what "economically recoverable" means are based on a formula of given assumptions, such as the definition of cost effectiveness and the future demand for coal-fired power. The report does not estimate the number of years of remaining coal reserves, even based on the definition of "economically recoverable" in the report.

<sup>6</sup> Appalachian Voices. Personal conversation with Dr. Matthew Wasson." Estimated from United States Geological Service Data, 2001.

<sup>7</sup> Alliance to Save Energy. Available: <http://www.ase.org/>.

<sup>8</sup> United States Census. "2006 American Community Survey." Available: [www.census.gov](http://www.census.gov).

<sup>9</sup> Kentucky Cabinet for Health and Family Services. LIHEAP program report. Available: <http://chfs.ky.gov/dcbs/dfs/LIHEAP.htm>.

<sup>10</sup> EIA.

<sup>11</sup> KPSC.

<sup>12</sup> Database of State Incentives for Renewables and Efficiency. Available: [www.dsireusa.org](http://www.dsireusa.org).

<sup>13</sup> Kentucky Cabinet for Health and Family Services.

<sup>14</sup> U.S. Housing and Urban Development. "Resident Characteristics Report." August 2008. Available: <https://pic.hud.gov/pic/RCRPublic/rcrmain.asp>.

<sup>15</sup> Center for Budget and Policy Priorities. "State Level Public Housing Data 2008." Available: <http://www.cbpp.org/9-18-08hous.htm>.

<sup>16</sup> Metcalf, Gilbert. "A Proposal for a U.S. Carbon Tax Swap." Published by the Brookings Institution, October 2007.