

# **Kentucky's Electric Infrastructure: Present and Future**

**An Assessment Conducted  
Pursuant to  
Executive Order 2005-121**

**by the  
Kentucky Public Service Commission**

**August 22, 2005**



# Executive Summary

This report was prepared in response to Executive Order 2005-121, issued on February 7, 2005 by Governor Ernie Fletcher, directing the Kentucky Public Service Commission (Commission) to report on the future needs for electricity in Kentucky.

The Executive Order called for a “Strategic Blueprint” to “promote future investment in electric infrastructure in Kentucky, to protect Kentucky’s low-cost electric advantage, to maintain affordable electricity rates for all Kentuckians and to preserve Kentucky’s commitment to environmental protection.” The Commission was directed to identify projected needs for new electric generation, transmission and distribution; barriers to investment in electric infrastructure; barriers to the utilization of new technologies; opportunities to promote utilization of renewable resources; and other information necessary to “help ensure future investment in electricity infrastructure to meet Kentucky’s needs.”

In response, the PSC collected information and comments from Commission jurisdictional utilities, non-jurisdictional utilities, independent power producers, and those with an interest in energy policy. A list of participants is on page 4.

## **PRESERVING KENTUCKY’S LOW ELECTRIC RATES**

Kentuckians pay the lowest electricity rates in the nation. In 2005, the average retail rate for electricity in Kentucky is 4.47 cents per kilowatt-hour (kWh), 40 percent below the national average rate of 7.52 cents/kWh. These low electricity prices have been a major factor in promoting economic development and growth.

Kentucky’s low electricity rates are the result of investment by Kentucky’s utilities in large, coal-fired generating units - which generate 95 percent of Kentucky’s electricity - combined with an abundant local fuel supply, sound utility management and a statutory system that regulates the price jurisdictional utilities may charge for retail electricity

Kentucky and the United States as a whole have ample coal reserves. Coal will continue to supply the majority of the nation’s electricity through 2025. But a number of uncertainties could affect Kentucky’s long-term ability to ensure low electricity rates. These include federal policies regarding the development of regional electricity markets and air emission standards, factors affecting coal production and the price of coal.

The Commission is concerned that federal decisions and those of states that have moved away from traditional electric utility regulation may have negative impacts on Kentucky’s transmission and generating facilities. As transmission requirements imposed from outside the state increasingly affect Kentucky, the Commonwealth is threatened with diminished control of a resource constructed for and paid for by Kentucky’s electric customers.

## KENTUCKY'S ELECTRIC INFRASTRUCTURE

Kentucky's jurisdictional electric utilities serve about 1.8 million customers. Thirty municipal electric systems and five distribution cooperatives supplied by the Tennessee Valley Authority are not subject to Commission jurisdiction. The non-jurisdictional electric utilities serve about 375,000 customers.

The Commission has determined that Kentucky's electric utilities, both jurisdictional and non-jurisdictional, have adequate generation infrastructure to serve their current customers and have demonstrated that they are adequately planning to serve the needs of their customers through 2025. Kentucky's peak electricity is expected to grow to an average rate of 1.7% requiring approximately 7,000 MW of additional generation by 2025 to maintain an adequate supply. It is also important to note all of the jurisdictional generating utilities currently rely on generation capacity that has been in operation for 35 years or more while none of the utilities indicated that they have plans to retire any of their older generating facilities, the Commission intends to require the jurisdictional utilities to address issues relating to their older generating units in their future planning.

Kentucky's electric transmission system is highly reliable to serve Kentucky customers. However, it is limited in the amount of power it can transfer through the state, particularly north and south.



Kentucky's electric transmission system is actually seven individual systems that are interconnected at numerous points throughout the state. The interconnections were initially intergraded to provide mutual reliability benefits, load diversity, and to reduce the occurrence of redundant facilities, but now are expected to transfer large blocks of power between utilities and states.

With the growth of the competitive wholesale market for electricity, the transmission system is now being called upon to provide interstate transfers – a purpose for which it was not designed. Power transfers from north of Kentucky to south of Kentucky, and vice versa, are limited due in part to the weak interconnection of the transmission systems.

While additional transmission interconnections are not needed for Kentucky's utilities to reliably and economically serve their customers, improving these interconnections may make it more feasible for Kentucky's utilities to increase off-system sales and for independent

power producers to locate in Kentucky. There is much debate concerning how to allocate the costs of such improvements. Kentucky should remain engaged in this debate at the FERC and with the Regional Transmission Organizations (RTOs).

The Comprehensive Energy Bill signed into law by President Bush on August 8, 2005 contains provisions regarding the siting of the nation's bulk transmission grid. The provision may impact Kentucky's ability to regulate the siting of transmission lines within our borders.

The bill requires the Department of Energy to designate "national interest electric transmission corridors." Kentucky's location between northern and southern load centers, coupled with the constraints on north-south power transfers within Kentucky, present the possibility that one or more "national interest electric transmission corridors" through Kentucky will be identified. That designation will give the Federal Energy Regulatory Commission (FERC) siting jurisdiction for facilities within that corridor if the state does not act within one year. Kentucky should take steps to protect the interests of the Commonwealth in this process. Kentucky should also revisit its transmission siting statutes to ensure that they mesh with the energy bill provisions.

Ensuring reliability of retail service requires adequately maintaining distribution infrastructure, particularly managing vegetation in rights of way (ROW). Effective ROW management - cutting trees or branches which may come into contact with distribution lines - can reduce outages and restoration time during severe weather.

Kentucky has no regulations setting specific parameters for ROW maintenance. The jurisdictional utilities have expressed their opposition to such a standard, in large part because of the difficulties they encounter with property owner's desire to leave their trees undisturbed. The Commission recognizes these difficulties, but is concerned that the reluctance of some property owners to allow proper trimming of their trees lessens the reliability of entire distribution systems.

Establishment of an ROW clearance standards could provide utilities with the means to ensure proper maintenance and improve the reliability of electric service. Therefore, the Commission believes that further consideration should be given to the establishment of some practical distribution ROW clearing parameters for Kentucky's jurisdictional electric distribution utilities.

### **CONSERVATION, ENERGY EFFICIENCY AND ENVIRONMENTAL PROTECTION**

As Kentucky's generating fleet ages, and as environmental requirements become more restrictive, energy conservation, the use of renewable energy sources, and alternative generation technology will play an increasingly important role in Kentucky.

Kentucky's jurisdictional utilities have established a number of demand-side management (DSM) programs to encourage energy conservation and defer the need to construct new generating capacity. However, because of relatively low electric rates, DSM has not yet proven to be as cost-effective in Kentucky as in other regions.

Several Kentucky electric utilities currently offer their customers the option of purchas-

ing “green power,” which is derived from renewable sources. However, due to the high cost to generate power from most renewable resources, “green power” is sold at a premium price. The Commission believes that it is important to encourage utilities to expand the use of renewables and reduce the cost of “green power”. Kentucky’s energy policy should include incentives to use renewable energy and an effort to educate the public regarding the benefits of renewables.

Financial incentives similar to those that may be developed for renewables should be available for coal gasification, which will enable the continued use of Kentucky coal while reducing the associated air emissions. Incentives could include tax credits, grants and low interest loans.

The Commission believes that Kentucky’s environmental policy should be balanced. We encourage the electric utilities, state regulatory agencies and interested organizations to participate at the state and federal level to ensure that sound environmental policy is developed.

### **REGULATORY CONCERNS**

In addition to concerns noted earlier, the Commission notes several regulatory issues affecting Kentucky’s electric utilities.

At the state level, a change in tax policy has the potential to significantly impact all jurisdictional electric utilities. The Kentucky Revenue Department has begun subjecting distribution and substation transformers to sales tax. One utility noted that it has been assessed almost \$2 million for the period from February 1, 2001 through November 30, 2004.

The increase in taxes assessed to regulated electric utilities will increase the cost to serve customers and will eventually result in higher rates. The Commission recognizes the responsibility of all citizens and companies to bear their fair share of Kentucky’s tax burden. Therefore, the Commission recommends that this issue be considered in Kentucky’s energy policy in the context of its overall impact on both electricity rates and taxes.

Federal energy policy has been moving toward a competitive market for electricity generation since the 1990’s. RTOs now operate energy markets in addition to their initial role of operating transmission systems regionally. Several states have restructured their electric industry to a competitive model. Kentucky has not. Kentucky will be impacted by the federal legislation and federal actions. The Commission believes that its regulatory structure has enabled it to have the lowest cost power in the nation and that Kentucky should preserve its current statutory and regulatory framework, which focuses on the utilities’ obligation to serve their customers within a defined service territory. Kentucky must insist on full participation in any federal decisions and work diligently to maintain its status as a low cost energy state.

The Commission recognizes that changes within the electric industry in recent years have increased uncertainty. However, the regulatory scheme in Kentucky has proven successful, due to the measured and deliberate approach that has been taken to address various issues. The Commission does not intend to suggest regulatory stagnation. Rather, in light of today’s greater uncertainty, we believe it is our responsibility to seek ways to improve the existing regulatory framework.

Because the U.S. electric power industry is changing, Kentucky should consider policies to protect or insulate Kentucky ratepayers from market uncertainties and the price implications of future environmental restrictions. Given the economic benefits of Kentucky growing as an energy exporter, Kentucky policy makers should also give consideration to opportunities for Kentucky citizens, businesses, and communities to benefit from greater participation in energy markets. In either case, a balanced approach will be necessary to preserve Kentucky's low-cost energy, responsibly develop Kentucky's energy resources, and preserve Kentucky's commitment to environmental quality.

Among the immediate uncertainties facing the electric power industry in Kentucky are: federal policies regarding the development of regional electricity markets and air emission standards; the ability to site new electric generation and transmission facilities; factors affecting coal production and the price of coal; and technologies that will improve the efficiency of electricity production and use. Policy and technological developments with regard to these issues will directly affect electricity rates in Kentucky. Given the importance of low electricity rates for Kentucky, both as a tool for recruiting and retaining businesses, as equally as a necessity for all its citizens, the Commonwealth must continually evaluate its policies to mitigate the risks associated with generating, transmitting and distributing electricity.

