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PREPARED FOR DEPENDABLE POWER FIRST KENTUCKY

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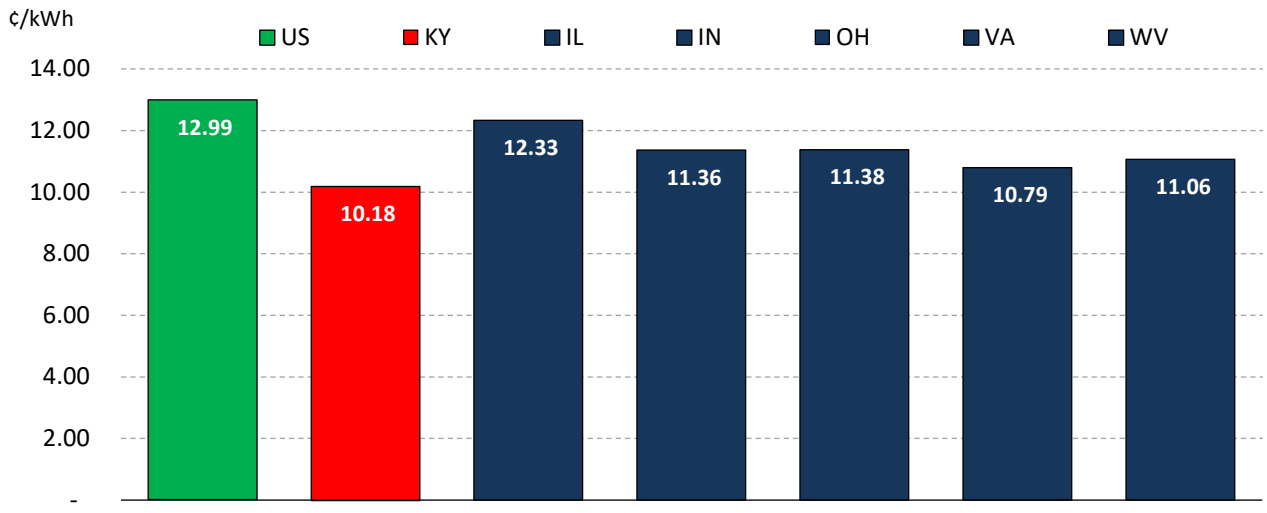
Introduction

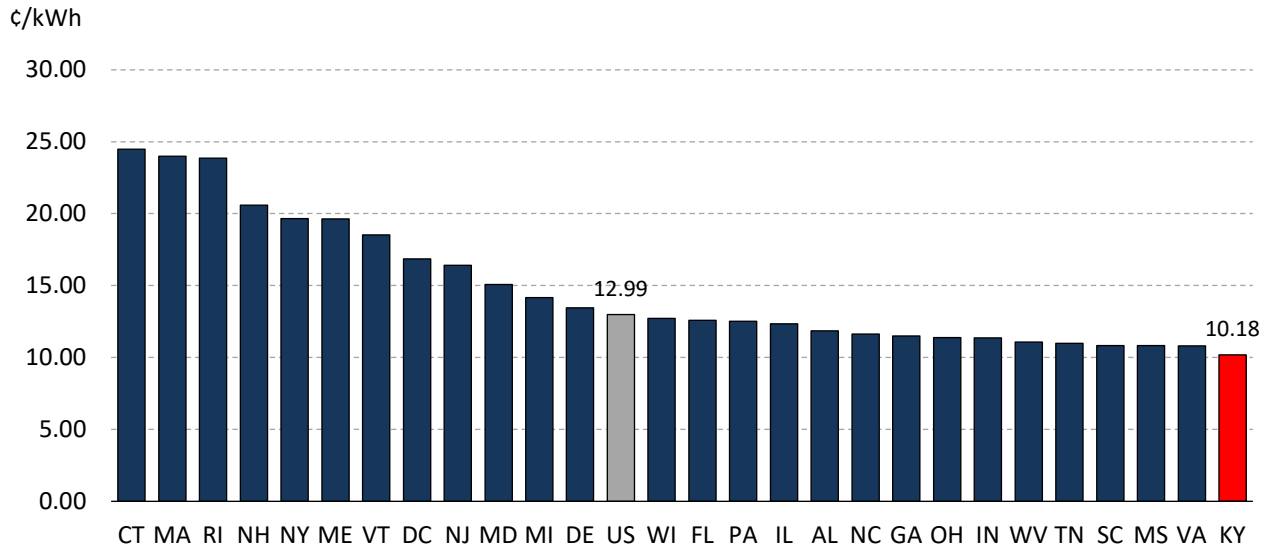
In 2024, coal-fired power plants generated 67% of Kentucky's electricity, ranking second among the states in coal generation, after Texas. Historically, over 90% of Kentucky's electricity has been generated by coal-fired plants. At 10.18 cents per kWh, Kentucky boasts the lowest electricity rates among states east of the Mississippi River and the 14th lowest in the nation. This analysis demonstrates that retail rates are primarily driven by nationwide variations in natural gas prices and the structural differences between regulated and deregulated electricity markets. In fact, Kentucky's reliance on coal has helped maintain comparatively low electricity prices over the past two decades when compared to other states in the region.

EXHIBIT 1 - 2024 KENTUCKY RETAIL ELECTRICITY PRICE COMPARISON - ALL SECTORS



Historically, the state's electricity rates have consistently ranked among the most affordable, often placing as the first, second, or third lowest among the 26 states east of the Mississippi River. While coal and natural gas remain the predominant resources for power generation, being cheaper due to their proximity to supply, the policies and ownership profiles of generation assets also play a crucial role in determining the stability and characteristics of electricity retail pricing in the state.

EXHIBIT 2 - 2024 AVERAGE ELECTRICITY RETAIL RATES FOR STATES EAST OF THE MISSISSIPPI

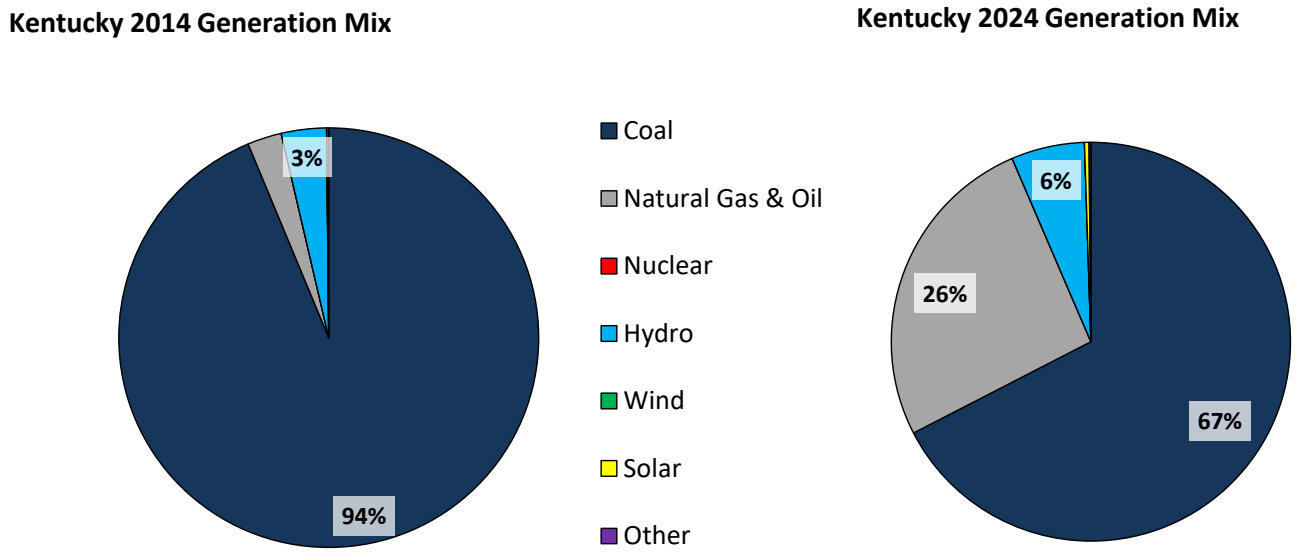


Source: Energy Information Administration

Kentucky's Generation Landscape and Rising Retail Electricity Rates

Kentucky ranks as the sixth largest coal-producing state in the U.S., providing a robust fuel supply for coal-fired power generation. While the state's natural gas reserves are more limited, the extensive network of natural gas pipelines crossing through Western Kentucky ensures a steady supply for new gas power plants. Although natural gas has gained a significant foothold in the state's energy mix, growing from 3% in 2014 to 26% by 2024, coal continues to dominate electricity generation. Over the past decade, coal's share has dropped from 94% to 67%, yet it remains the primary source of energy. Meanwhile, renewable energy development has been minimal, with hydroelectric power as the only significant contributor, accounting for 6% of electricity generation.

EXHIBIT 3 - COMPARING KENTUCKY'S GENERATION MIX IN 2024 AND 2014

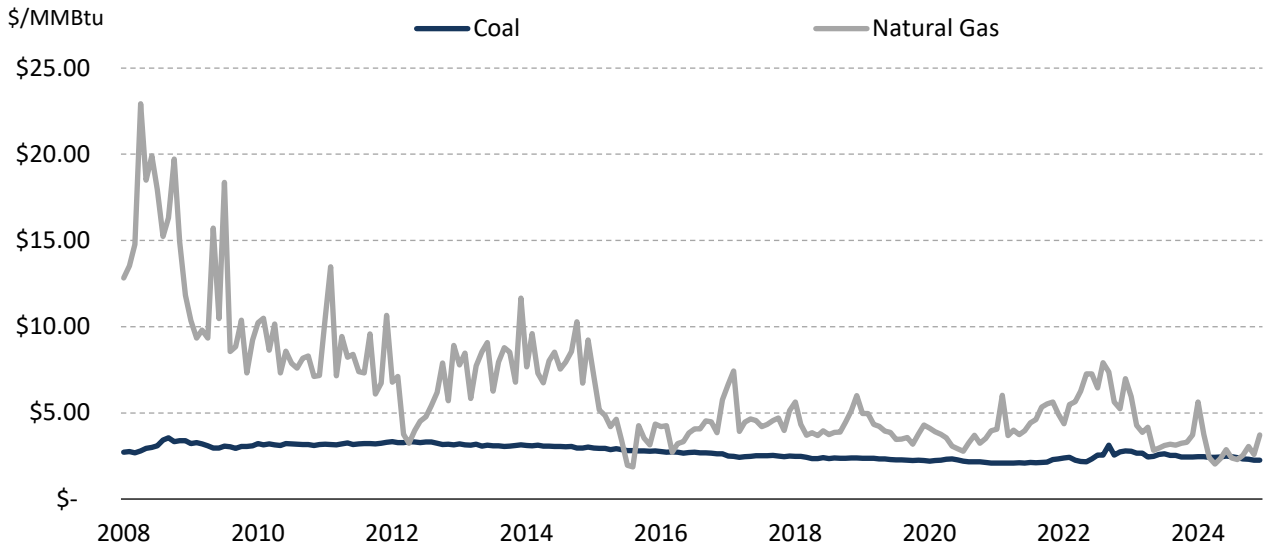


Source: U.S. Department of Energy, Energy Information Administration

Historically, Kentucky has enjoyed some of the lowest retail electricity rates in the nation. This has been primarily due to its proximity to coal reserves and the state's heavy reliance on coal production and coal-fired generation. Similar trends are observed in neighboring states, such as West Virginia, which has significant coal production, where electricity retail rates also tend to be lower than the national average.

The price stability of these energy sources varies significantly. Natural gas prices have exhibited historical volatility, often influenced by market dynamics and geopolitical events. In contrast, coal prices have remained relatively stable over the last few decades, with recent fluctuations primarily attributed to external factors such as severe winter weather conditions and the broader impacts of the global energy crisis.

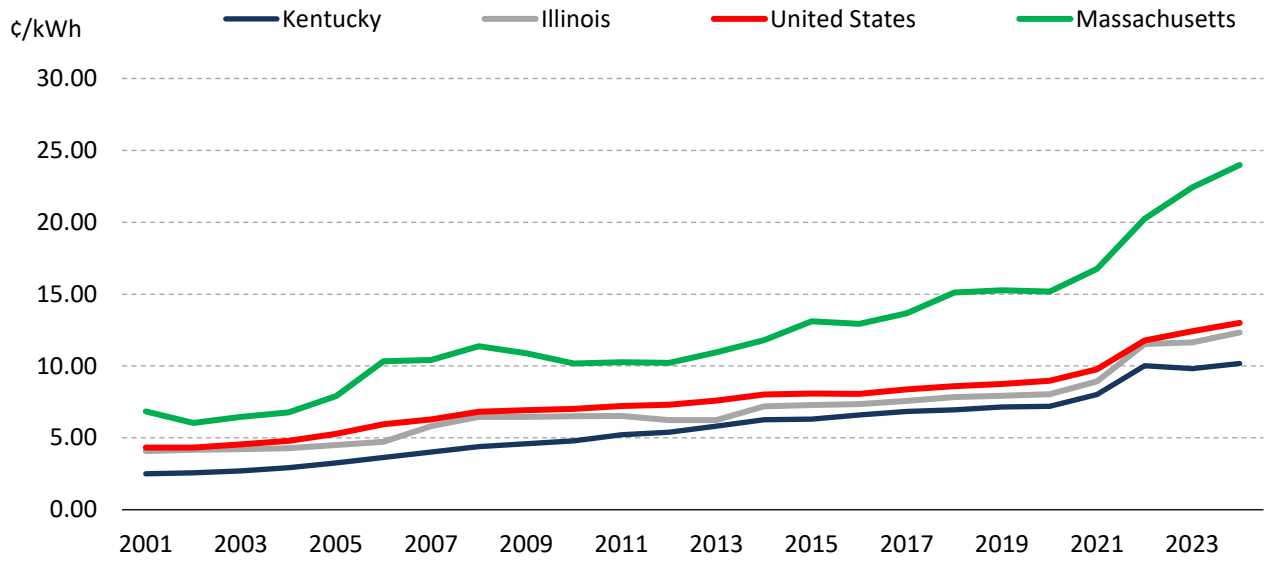
EXHIBIT 4 - MONTHLY DELIVERED PRICES OF COAL AND NATURAL GAS FOR KENTUCKY



Source: Energy Information Administration

EXHIBIT 5 shows the average electric retail rate (adjusted for inflation) for Kentucky, Illinois, Massachusetts, and the United States average since 2001. With declining coal generation and increasing dependence on natural gas, Kentucky retail prices have been steadily increasing.

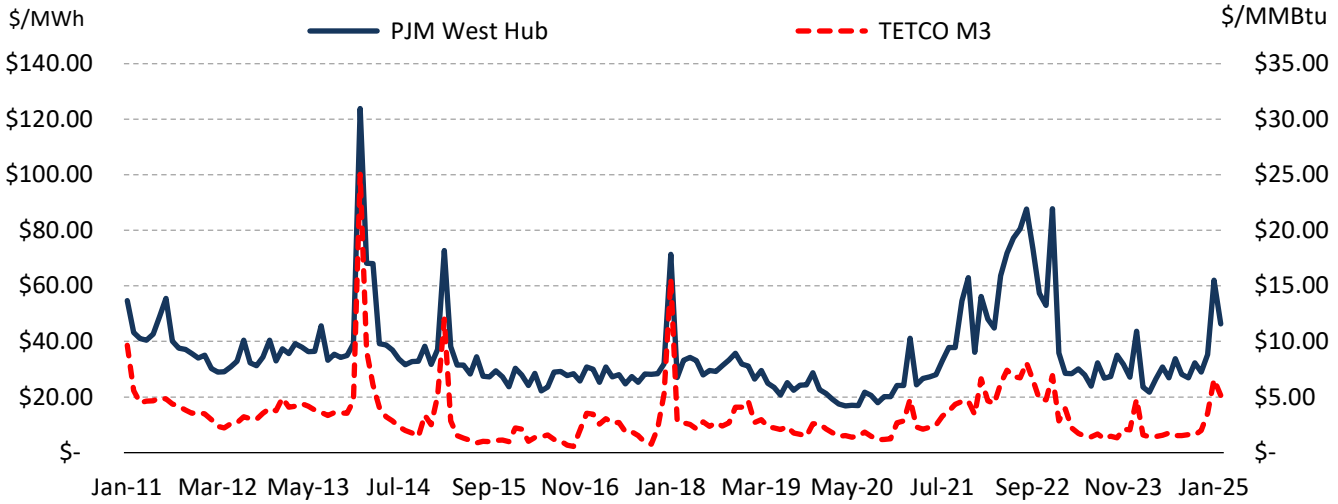
EXHIBIT 5 - HISTORICAL AVERAGE ELECTRICITY RETAIL RATES OF KENTUCKY, ILLINOIS, MASSACHUSETTS, AND THE UNITED STATES



Source: Energy Information Administration

Although Kentucky electric **retail** rates have remained low over the past few decades, PJM wholesale electricity prices, in which some Kentucky utilities participate, have exhibited significant volatility and a high correlation with regional and national natural gas prices. As shown in **EXHIBIT 6**, this volatility is closely linked to natural gas prices, with electricity prices following similar upward and downward trends in response to changes in natural gas prices.

EXHIBIT 6 - PJM WHOLESALE ELECTRICITY PRICE VS. NATURAL GAS HUB (TETCO M3) PRICING



As depicted in **EXHIBIT 6**, natural gas prices and wholesale power prices within the PJM power market, of which parts of Kentucky are a constituent, exhibit a strong correlation, mainly due to the substantial proportion of natural gas resources utilized within the market. Furthermore, PJM natural gas prices demonstrate a significant correlation with prices at other

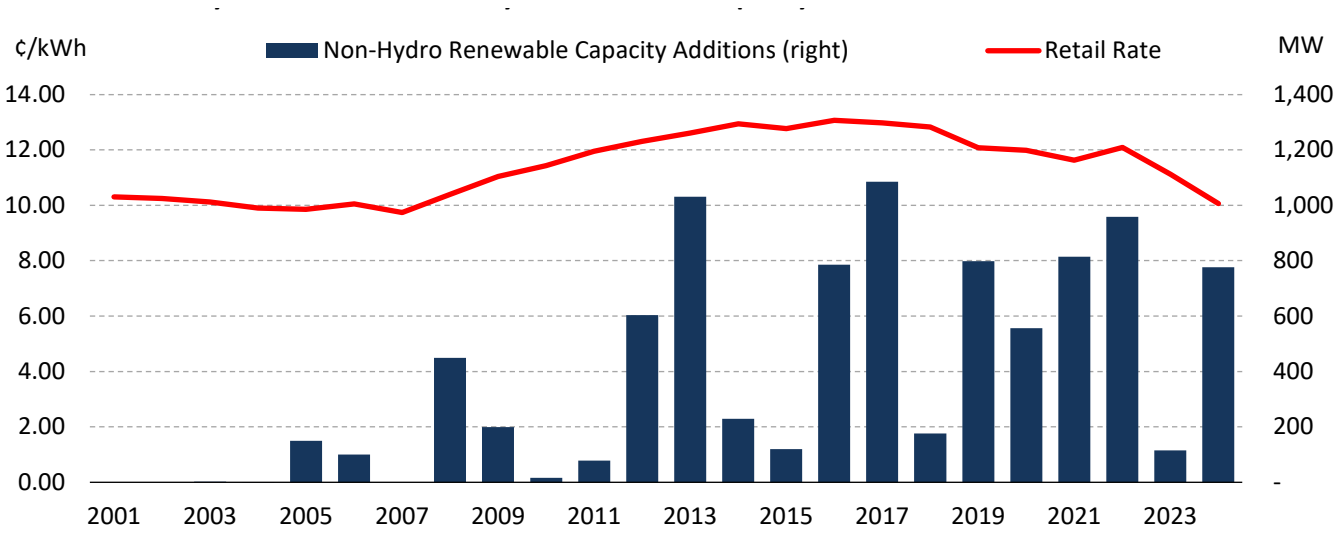
major natural gas hubs, such as Henry Hub in Southwestern Louisiana. This is primarily because natural gas is a widely traded homogeneous commodity throughout the United States. Consequently, any fluctuations in natural gas prices—and, by extension, wholesale power prices within PJM—are primarily influenced by events that impact natural gas supply or demand beyond the regional market.

Conversely, the price of coal delivered in Kentucky is less susceptible to external disturbances, owing to the relatively limited trade volume and the region's proximity to Appalachian coal sources. This localized pricing dynamic shields Eastern Kentucky from broader market fluctuations, thus stabilizing electricity costs derived from coal.

The presence of major natural gas pipelines, such as the Columbia Gas Transmission pipeline and Tennessee Gas Pipeline, which traverse Kentucky, ensures a reliable and well-integrated supply of natural gas. Although 90% of this transmission is directed to other states, it still supports a consistent supply to Kentucky, thereby facilitating the growth and increased capacity of natural gas-fired plants. The increased dependence on natural gas, along with this engagement, has heightened their exposure to the inherent price volatility driven by the fluctuations in natural gas prices, which significantly affect the power market's electricity cost structure. In contrast, Kentucky's coal-fired power plants rely predominantly on coal mines within the region, thus insulating them from external price influences that affect other energy sources.

Renewable Transition and Retail Rates

EXHIBIT 7 - KANSAS ELECTRICITY RETAIL RATE AND NON-HYDRO RENEWABLE CAPACITY ADDITION



Source: Energy Information Administration

In states like Iowa and Kansas, the addition of renewable energy capacity has been a significant driver of economic growth and energy diversification. However, this expansion, particularly wind and solar, has also led to an increase in electricity rates. In Kansas, prices spiked in 2012-2013 and remained high as wind capacity additions increased by 1.5 GW during those years. The rise in rates is mainly due to the need to recoup the substantial capital investments required for the development and integration of renewable energy projects.

When utilities and energy developers invest in new renewable energy capacity, the upfront costs can be considerable, despite the substantial subsidies the industry receives through federal tax credits, such as the Production or Investment Tax Credits. These include not only the cost of the technology itself—such as wind turbines or solar panels—but also the expenses related to infrastructure upgrades, grid integration, and transmission. To recover these investments, utilities often pass on all the costs to consumers through higher electricity rates.

In Iowa and Kansas, which have aggressively pursued wind energy development, the initial capital outlay has been offset by higher retail rates. These increases are designed to ensure that the utilities can maintain financial viability while continuing to invest in clean energy. Over time, as these investments are paid down and renewable technologies continue to mature, it is expected that rates will decrease. However, in some cases, such as Florida, they remain stable or continue to increase as growth in demand leads to further expansion of renewable energy.

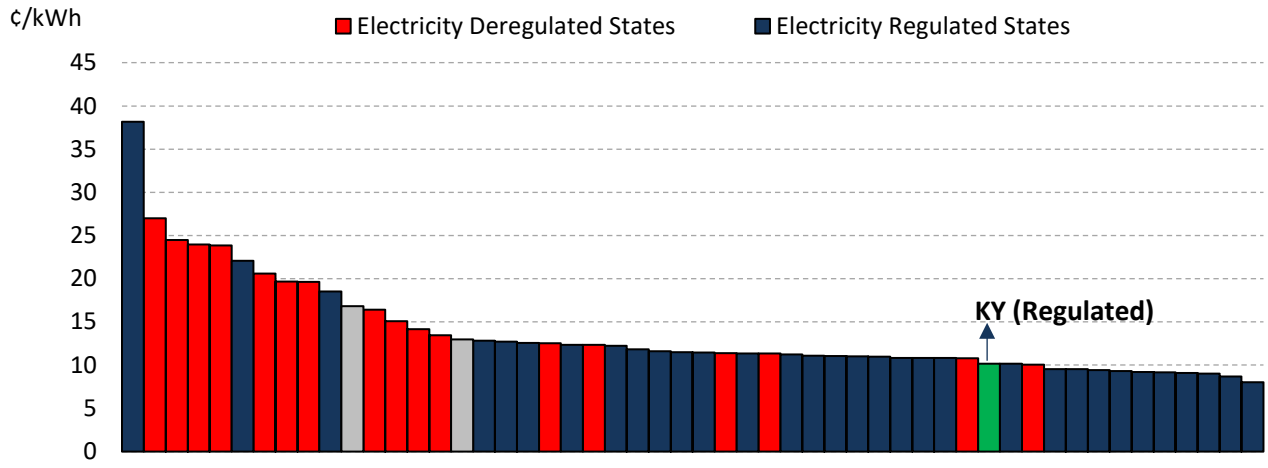
Deregulation and Impact on Retail Rates

While the transition from coal and the expansion of renewables is an essential facet of retail rates, state policy and the ownership of generation assets are critical factors in determining both long-term and short-term trends in retail rates.

Policy decisions play a crucial role in shaping retail electricity prices, influencing everything from the structure of the energy market to the cost of generation and distribution. Regulations at both federal and state levels determine how utilities can recover costs, the types of energy resources that are prioritized, and the incentives available for different forms of energy production. Policies that promote renewable energy or mandate emissions reductions result in increased capital or operating costs for utilities, which are subsequently passed on to consumers in the form of higher electricity rates. Conversely, policies that support fossil fuels or limit regulatory burdens help keep prices lower, particularly in regions with abundant coal resources, such as Kentucky.

One of the most significant policy decisions in the U.S. electricity industry was allowing for the deregulation of electricity generation. Traditionally, the entire electricity supply chain— generation, transmission, and distribution —was regulated by state or federal agencies. However, starting in 1996, states started to exclude electric generation from regulation, hoping that increased competition between independent power producers and regulated utilities would reduce the overall cost of electricity to end-consumers. Today, about 20 states have some form of deregulated or restructured system, while the majority of states still use regulated monopolies. **EXHIBIT 8** shows the 2024 average retail rate ranking of regulated vs. deregulated states. Kentucky, highlighted in green, continues to regulate electric generation within the state. The only state in the entire U.S. with deregulated electricity markets and lower electric retail rates than Kentucky is Texas.

EXHIBIT 8 - 2024 RETAIL PRICES OF ELECTRICITY REGULATED AND DE-REGULATED STATES

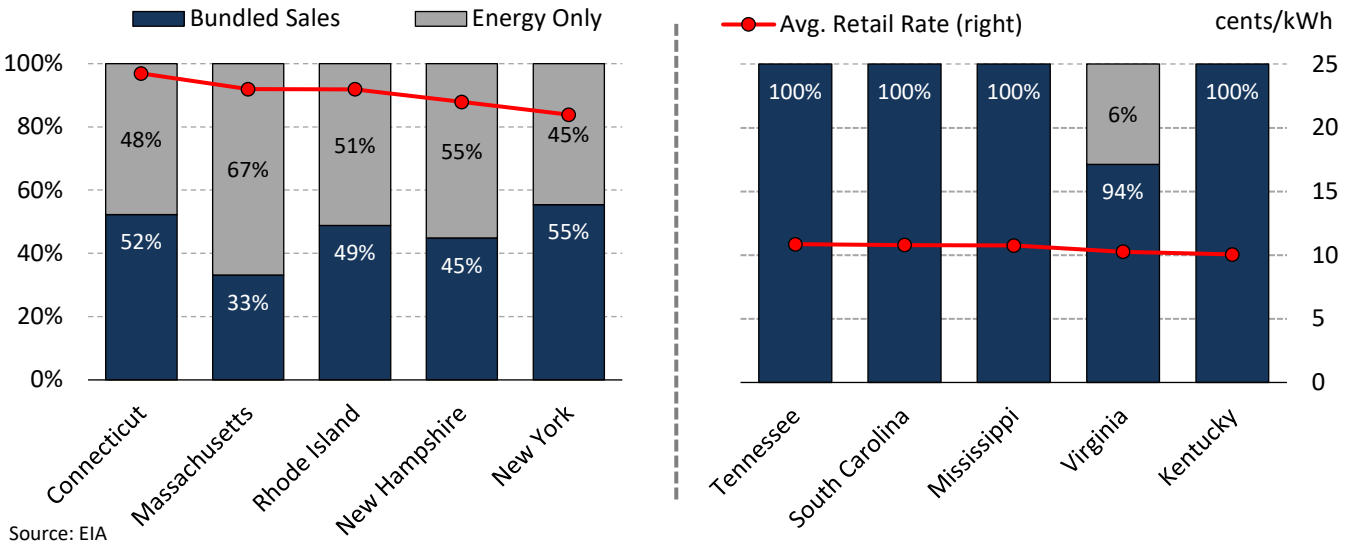


Source: Energy Information Administration

EXHIBIT 9, EXHIBIT 10, and EXHIBIT 11 focus on the 26 states east of Mississippi that are most comparable to Kentucky. All three charts show the five highest-cost states on the left (Connecticut, Massachusetts, Rhode Island, New Hampshire, and New York) and the five lowest-cost states on the right (Tennessee, South Carolina, Mississippi, Virginia, and Kentucky).

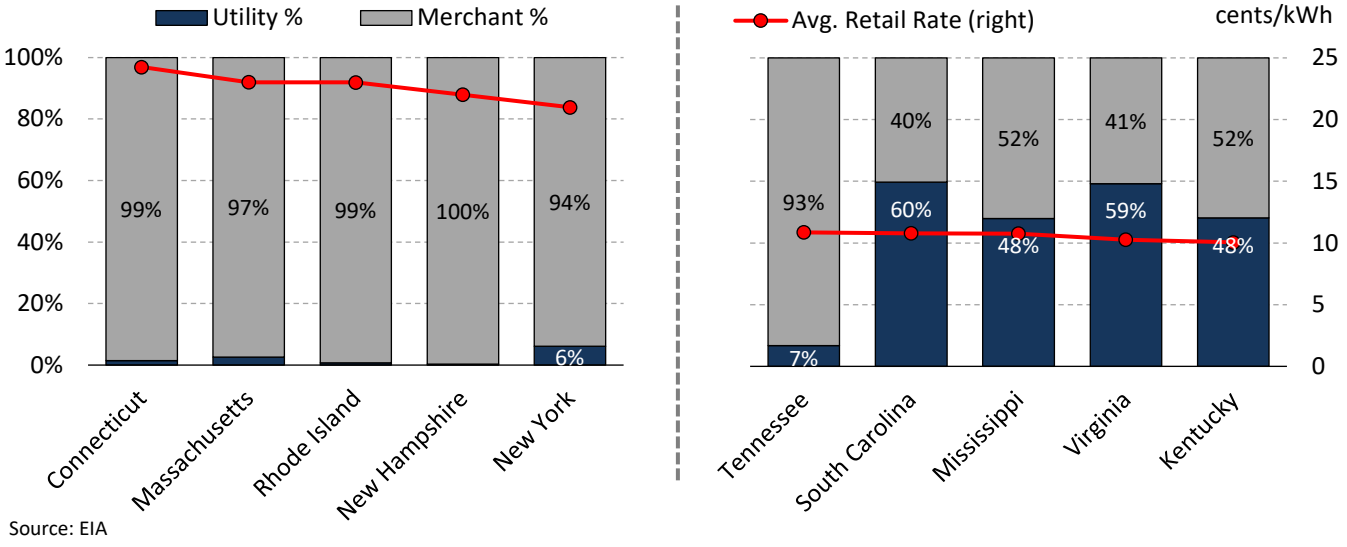
EXHIBIT 9 shows the share of energy-only retail electricity marketers compared to all electricity marketers within the state. Retail power marketers are only active in deregulated states, where they primarily purchase wholesale electricity and resell it to their retail customers. Transmission and distribution charges are still charged by the regulated utility where the customer is located. **EXHIBIT 10** shows the 2023 in-state generation share of merchant versus utility power plants for the five states with the highest and lowest costs. Finally, **EXHIBIT 11** shows the 2023 generation mix for the five states with the highest and lowest costs.

EXHIBIT 9 - 2023 ELECTRIC RETAIL SALES BY SALES CATEGORY FOR THE TOP 5 (LEFT) AND BOTTOM 5 (RIGHT) RETAIL RATE STATES EAST OF THE MISSISSIPPI



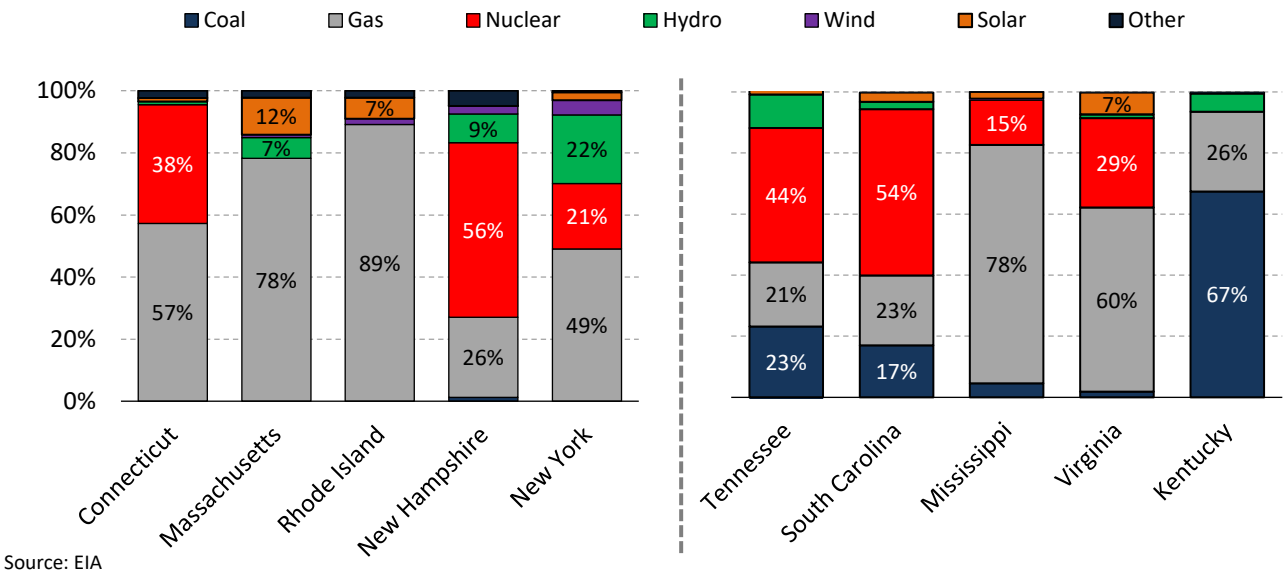
Source: EIA

EXHIBIT 10 - 2023 IN-STATE ELECTRIC GENERATION SHARE BY UTILITY TYPE FOR THE TOP 5 (LEFT) AND BOTTOM 5 (RIGHT) RETAIL RATE STATES EAST OF THE MISSISSIPPI



Source: EIA

EXHIBIT 11 - 2024 IN-STATE GENERATION MIX BY FUEL TYPE FOR THE TOP 5 HIGHEST (LEFT) AND TOP 5 LOWEST (RIGHT) RETAIL RATE STATES EAST OF THE MISSISSIPPI



Source: EIA

EXHIBIT 9, EXHIBIT 10, and EXHIBIT 11 collectively highlight the unfulfilled promises of electricity deregulation and the ensuing price volatility stemming from an increased reliance on natural gas. **EXHIBIT 9** demonstrates that in the five highest-cost states, over 40% of the retail sales are conducted by retail power marketers rather than regulated utilities. In stark contrast, in the five lowest-cost states, retail power marketers conducted no sales, as these states chose not to deregulate their electricity markets. **EXHIBIT 10** further illustrates that in the five highest-cost states, independent power producers are responsible for virtually all in-state electricity generation. Conversely, in the five lowest-cost states, independent power producers contribute 28% or less of the in-state generation.

In Eastern Kentucky, electricity is predominantly supplied by regulated utilities operating under stringent state oversight, which effectively insulates consumers from market volatility. The pricing structure here is determined by state utility commissions, resulting in more stable prices over time, which is aided by the region's substantial reliance on coal. Meanwhile, Western Kentucky, though more exposed to competitive electricity markets, still sees all in-state electric retail sales conducted through regulated utilities that own and operate their own power plants within the state.

EXHIBIT 11 underscores the dependency of the five highest-cost states on natural gas for the majority of their in-state electric generation. As previously noted, the price of natural gas is subject to significant fluctuations due to its status as a widely traded commodity, making it susceptible to national and international market dynamics. On the other hand, the four lowest-cost states primarily rely on more stable energy sources such as nuclear and coal-fired power plants. However, Kentucky is currently witnessing a significant shift, with a growing reliance on natural gas and a corresponding decline in in-state coal generation, signaling a potential increase in future price volatility and regulatory challenges.

Conclusion

In summary, Kentucky's historical and current electricity generation and pricing dynamics emphasize the profound impact of resource selection and regulatory frameworks on retail electricity rates. Kentucky has maintained some of the lowest electricity rates in the nation, primarily due to its abundant coal resources and regulated market structure. This has insulated the state from the price volatility that has affected deregulated markets, which are more exposed to natural gas price fluctuations.

However, the state is experiencing a notable shift in its energy mix, moving away from coal and increasing its reliance on natural gas. This transition, while mimicking national trends of replacing coal with natural gas-fired power plants, introduces new challenges. The volatility of natural gas prices, influenced by both national and international market dynamics, could lead to future instabilities in electricity pricing as Kentucky utilities either increase their usage of natural gas in their own generating fleets or their reliance on market purchases, which are increasingly dominated by fluctuations in natural gas prices.

Lastly, PJM's latest capacity auction results highlight the value of in-state regulated utility-owned generating resources. While other states will likely see double-digit rate increases due to the record-high capacity prices of the 2025/26 PJM capacity auction, customers of Kentucky utilities participating in the PJM market will see no or a minimal rate increase as most of the state's utilities did not participate in the auction as they own and operate sufficient power plants to meet their demand. Maintaining Kentucky's coal fleet will be paramount to ensuring Kentucky ratepayers continue to enjoy one of the country's lowest electricity rates.