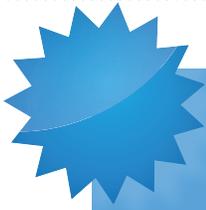
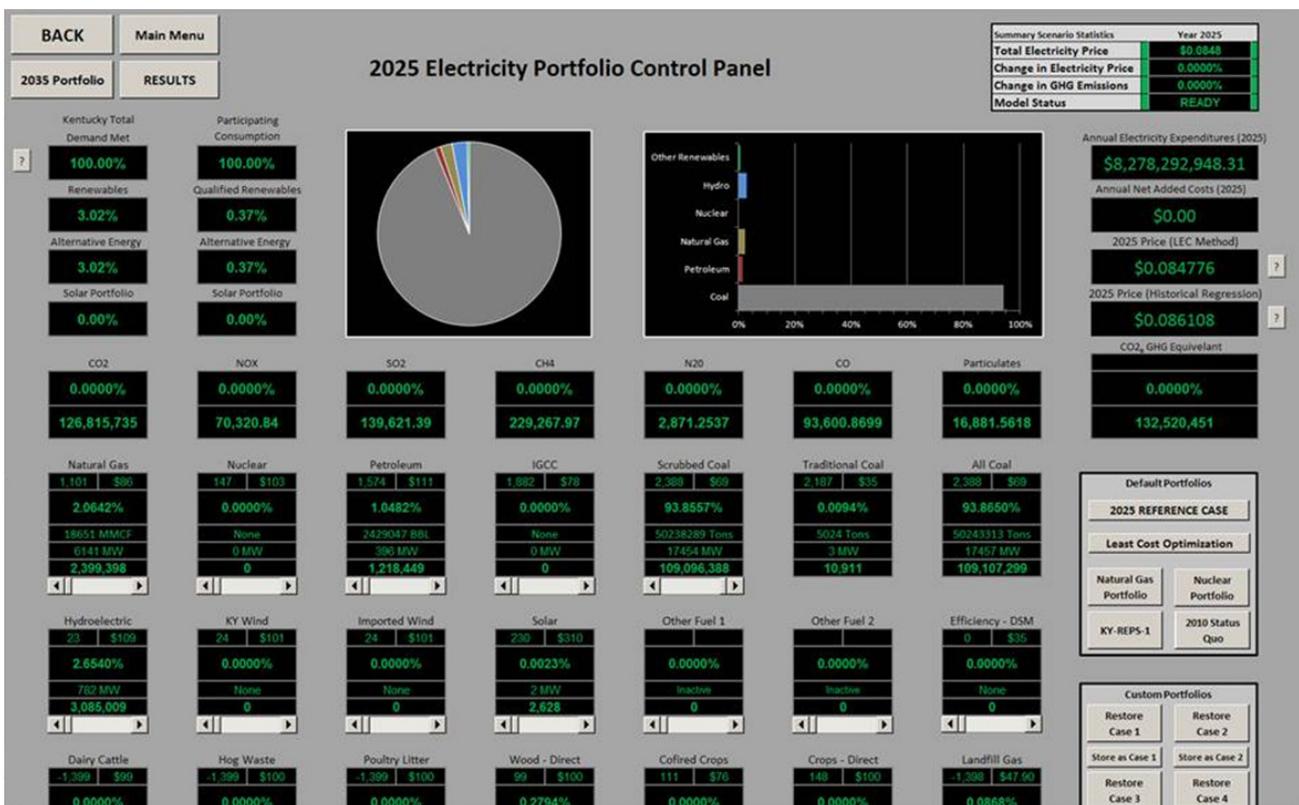


# The Kentucky Electricity Portfolio Model



The Kentucky Electricity Portfolio Model is an interactive computer model developed by the Kentucky Department for Energy Development and Independence to analyze macro level implications of changing the Commonwealth's electricity generating portfolio under a variety of conditions.

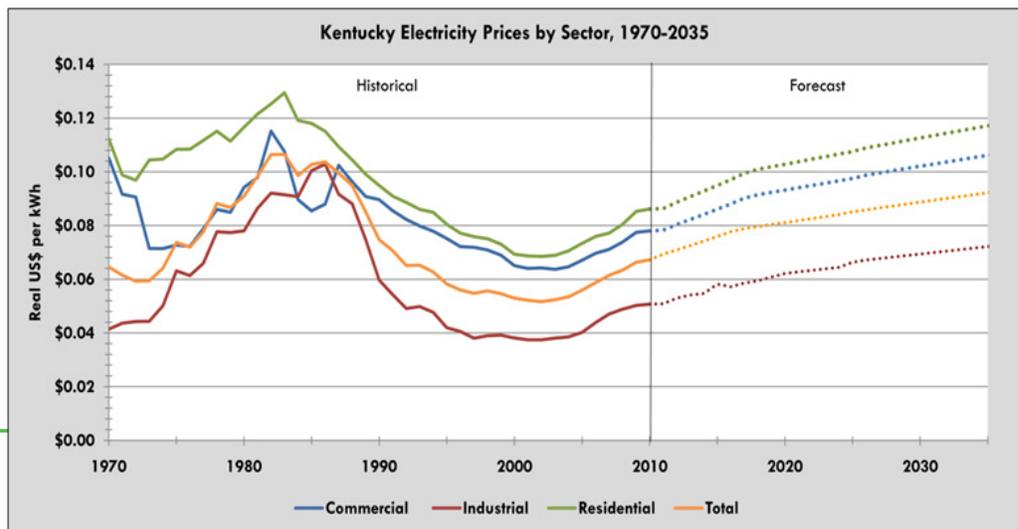


From the model's control panel, users can interact with Kentucky's 2025 electricity generating portfolio by moving toggles that reallocate the proportion of electricity being produced from each energy resource. For example, while Kentucky has historically met electricity demand using Kentucky coal, users can change the energy mix for electricity generation to other energy resources (natural gas, renewable energy, efficiency, etc.). The model provides the user with instant visual feedback on the costs, air emissions, and fuel consumption requirements associated with the changes the user has made. The user can also see the potential impact that a portfolio standard requirement, like a renewable portfolio standard, might have on electricity price and demand. The model is also capable of optimizing the generating portfolio to identify the least-cost means of meeting electricity demand under a given set of parameters.

The model's dashboard is designed to be quick, flexible, and educational. To this end, department staff have pre-loaded the model with default values for all relevant variables; however, users can themselves view and modify all underlying assumptions including future electricity demand by economic sector, consumer sensitivity to changes in price by sector, environmental regulations, generating costs, fuel prices, carbon penalties, and emissions factors.

The model processes user changes to the generating portfolio and other assumptions to forecast long-term electricity demand, price, price volatility, as well as generation capacity requirements, fuel consumption, and air emissions — including greenhouse gas emissions — from the year 2011 to 2050 for the Commonwealth as a whole. The model relies upon the Kentucky Energy Database, which was developed to supply the historical time series necessary to build and calibrate the algorithms in this model.

Kentucky Electricity Portfolio Model, like all models, cannot predict the future; however, it does provide the capability to analyze trends and potential outcomes that result from changes in our electric generation energy mix. It is designed to help Kentucky's leaders make informed decisions about our future.



Source: EIA.gov  
KY DEDI Database

“We have developed a unique capability to help us analyze the economic and environmental impacts that may result from changes in our electric power generation profile. . . [this model] will serve us well as we address the new challenges and opportunities that lie ahead.”

- Secretary Len Peters, EEC