

Kentucky's Energy Initiatives



Developing a statewide energy economy that provides jobs, reduces emissions, and protects the environment.

Len Peters, Kentucky Energy & Environment Cabinet

State Energy Policy and Initiatives: Making It Happen
Southern States Energy Board
August 19, 2011

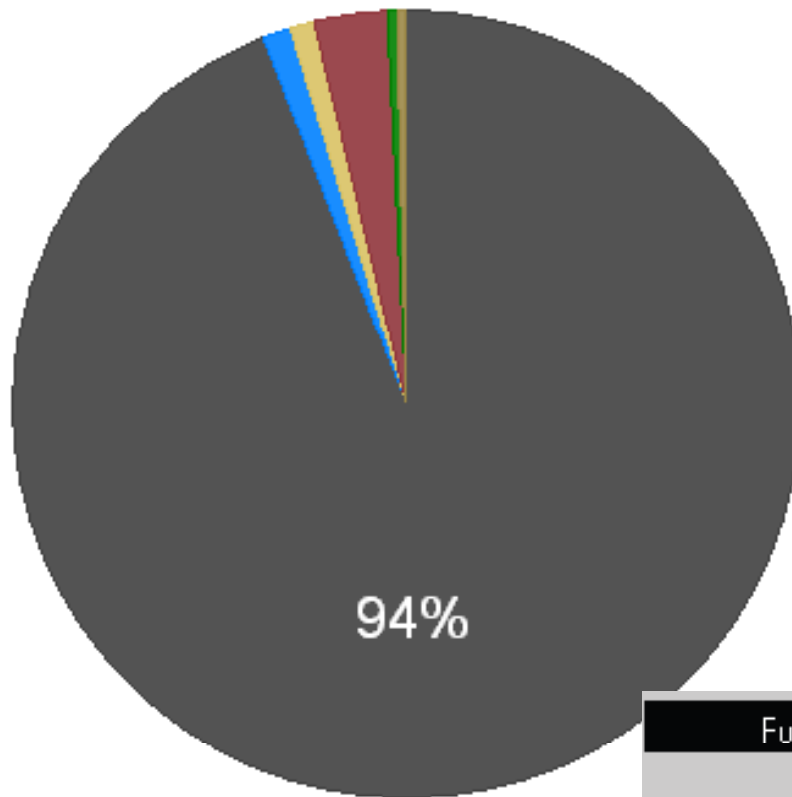
Kentucky Energy Plan Development

- Governor Beshear included energy in his campaign platform.
- Governor created the Energy and Environment Cabinet—the first state that placed both programs in one executive branch agency.
- Governor created a comprehensive energy plan.
 - Goals of plan tie in with many existing state policies and statutes.
 - Plan implementation—very much a stakeholder process, including follow-on initiatives through Biomass Task Force and Kentucky Climate Action Plan Council.

Energy & Kentucky's Economy

- Electricity rates among the lowest in the nation, especially for industrial users.
 - KY: 4.63 cents/kWh
 - National: 6.52 cents/kWh
- Industrialized economy (213,000 employed) with major energy users: automotive, steel, aluminum.
- Industrial electricity use is 45 percent higher than the national average.
- 3rd largest coal producer in country (18,000 mining jobs); 3rd largest automotive industry; provide 40 percent of the nation's aluminum; and 30 percent of the stainless steel (all with just 1.3 percent of the nation's population).

Current Profile

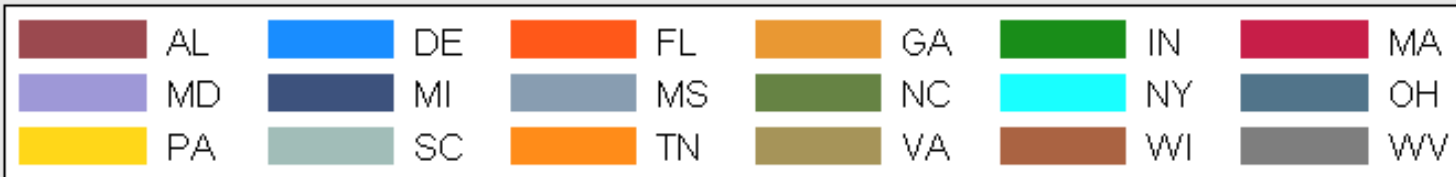
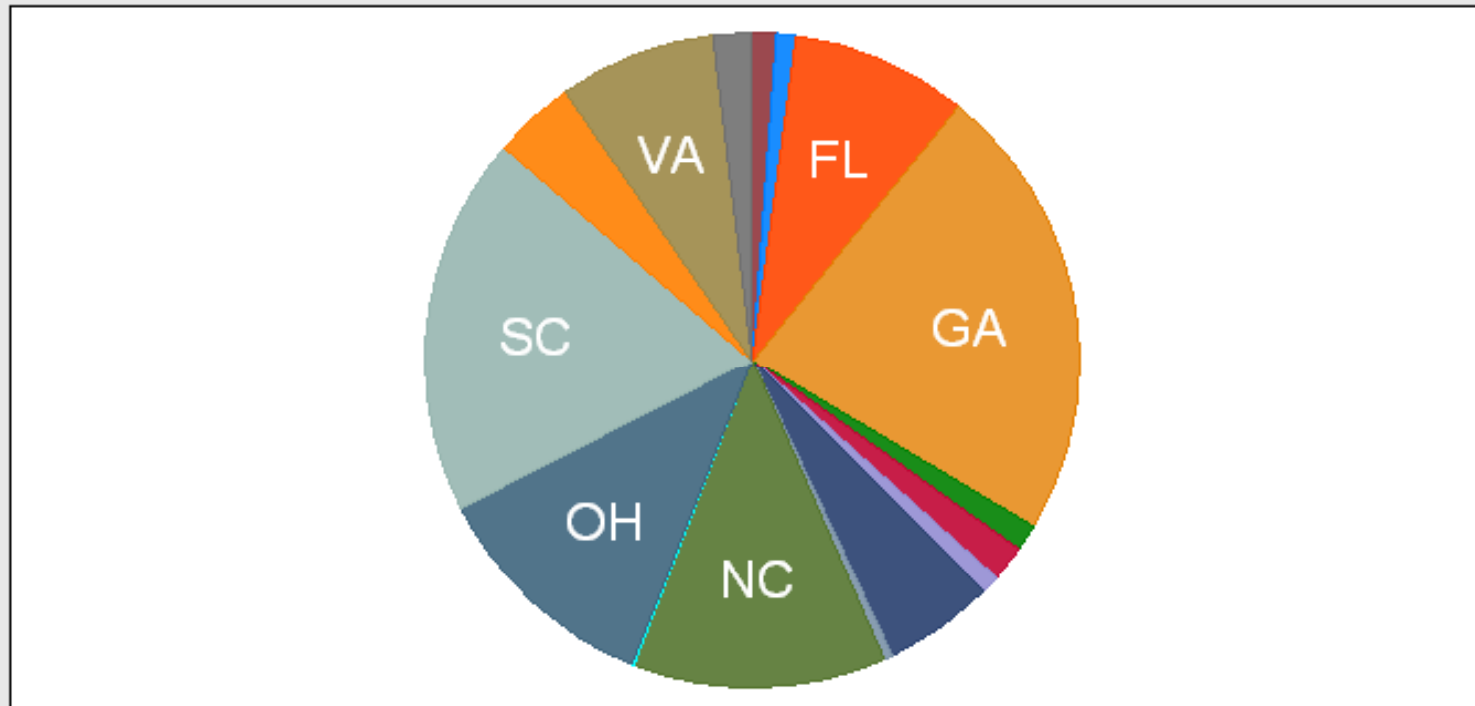


Electricity Generation
by Fuel Type, 2008

Fuel Type	Gigawatt Hours	Percentage
Total	97,553	100%
Coal	91,621	94%
Petroleum	2,874	3%
Hydro	1,917	2%
Natural Gas	983	1%
Wood & Biomass	919	<1%

Eastern Kentucky Coal Exports, 2009

Shipments to Electric Generating Plants by State (%)



Kentucky Coal Delivery Database, EEC-DEDI, 2010

86 percent of the coal mined in Eastern Kentucky is exported—with the majority exported to SSEB member states.

Kentucky's Energy Drivers

- Improve energy security.
- Diversify our energy portfolio.
- Reduce carbon dioxide emissions.
- Provide economic prosperity and job creation.
- Protect manufacturing base.

“We can keep producing and consuming energy the way we’ve always done so, a choice that means we will be left behind. Or we can adapt to a changing world and make wise decisions today that will benefit us economically and environmentally in the long term.”—Governor Steve Beshear, September 2009

Kentucky's Energy Challenges

- Aging infrastructure—average age of coal generation fleet is 35 years.
- Rising energy costs.
- Limited affordable renewable resource potential with current technologies.
- Growing demand for energy in all sectors (40% by 2025).

These challenges are not unique to Kentucky among Southern States.

Today's Realization: Federal environmental policy is driving energy policy

- Federal rules & regulations (sheer number and timelines for implementation)—greenhouse gas tailoring rule; coal combustion residuals; revised NAAQS; cross-state air pollution; cooling water intake and water discharges; mercury and hazardous air pollutants.
- Federal policies creating additional uncertainty—guidelines affecting coal mine permitting for Appalachian states; congressional discussions regarding clean energy standards; FERC rules on national transmission system to facilitate growth in renewables.

Strategies, Policies & Programs

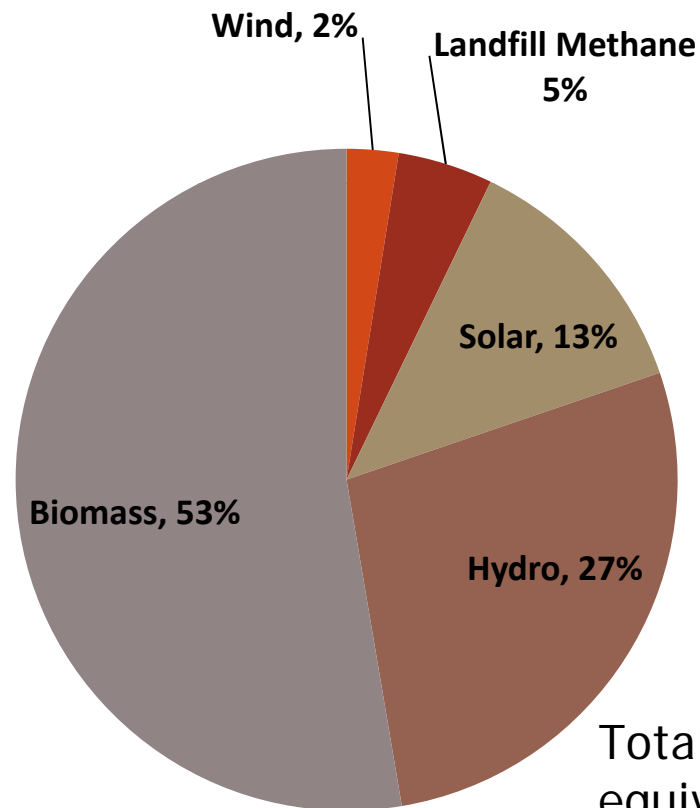
- **7-Point Comprehensive Energy Plan**
 - Improved energy efficiency; growth in renewable energy; including biomass; policy support for coal to liquid, coal to gas and carbon capture/storage; and examine the use of nuclear power for electricity generation in Kentucky.
- **Key Legislative Actions**
 - Incentives for coal conversion, renewables, efficiency programs, sustainable manufacturing, R & D.

Strategies, Policies & Programs

Programs

- Energy efficiency programs for industries, businesses, K-12, agriculture, residential, and government buildings.
- Smart grid, appliance rebates.
- Biomass Task Force; other renewable development programs.
- University-state partnerships in R & D: battery technology; algae; carbon capture and storage; biomass development; renewables and efficiency.
- Carbon management; coal conversion.
- Tools to enhance programs: in-house economic modeling & forecasting; technical training through U.S. DOE.

Kentucky's Renewable Potential, 2025



Total: 130 tBtu, which is equivalent to about 270 thousand GWh

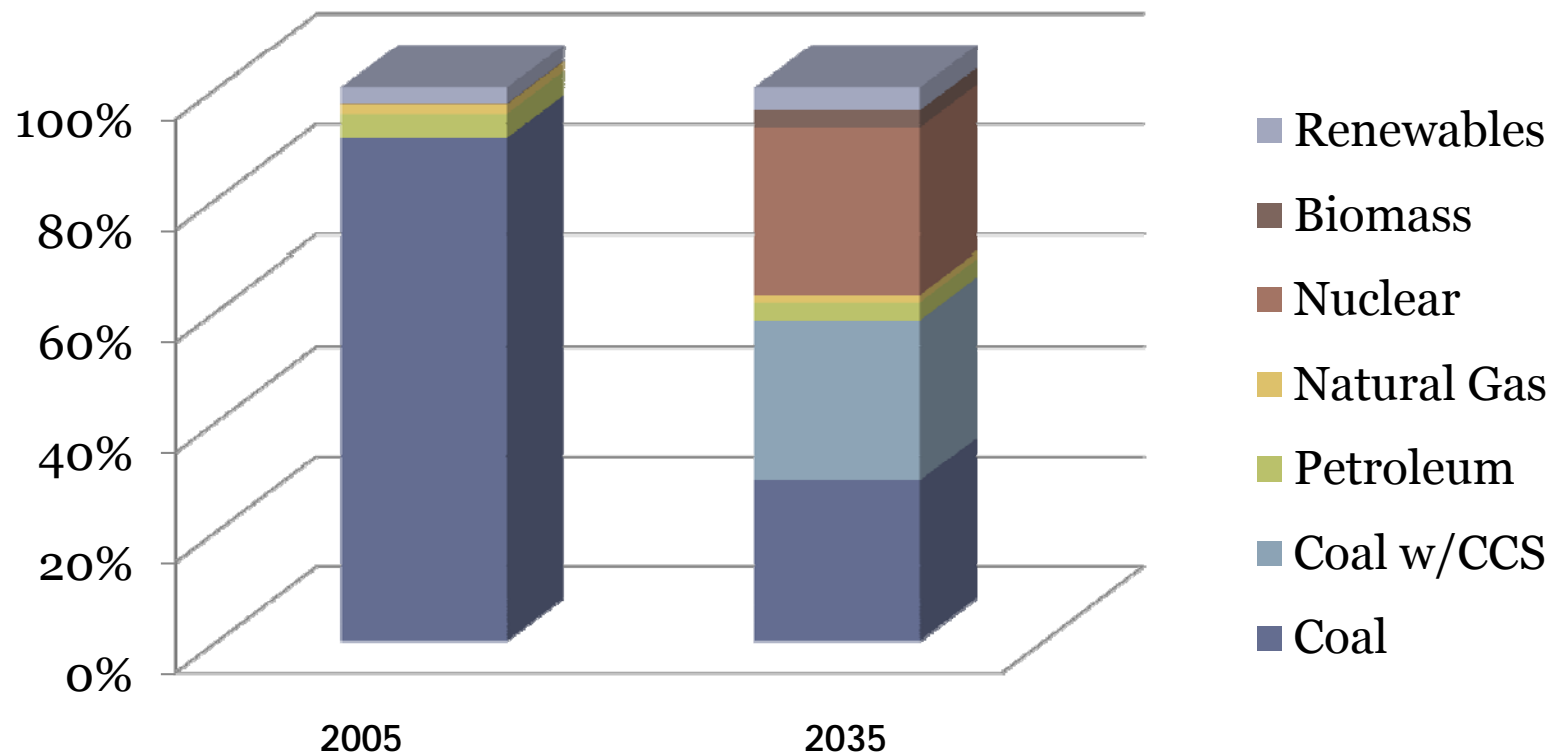
Promising Areas

- **Biomass**
 - Good Capacity Factor.
 - Reduce atmospheric carbon.
 - Sustain market for coal through co-firing.
 - Potential \$3.4 billion revenue; job creation.
- **Energy Efficiency in Schools**
 - Large returns on investment.
 - Kentucky already has two net-zero schools; growing number of Energy Star school buildings.
 - Willing participants—school districts are learning of others' successes.
- **Battery Technology**
 - Kentucky-Argonne Battery Manufacturing Research and Development Laboratory.
- **Coal Conversion**
 - Construction has started at three CTL facilities.

Kentucky's Strategic Energy Direction

- Diversifying Electricity Portfolio

Kentucky's Electricity Generation Sources



Diversified Electricity & Transportation Portfolio Will Allow Us To

- Mitigate electricity cost increases over the long-term—EPRI study.
 - Limited portfolio leads to reduced coal usage and higher energy costs (EPRI, 2009).
- Continue using coal resources; increase biomass production.
- Create economic development opportunities—higher value coal utilization; green jobs; robust manufacturing base.
- Enhance energy security.

Our energy future will be determined by finding the appropriate balance:

- **ENERGY**—We must not sacrifice energy reliability, the cornerstone of our nation's growth.
- **ENVIRONMENT**—We can and must use our energy resources in an environmentally responsible manner.
- **ECONOMY**—We shouldn't pick winners at the expense of losers, and energy affordability must be at the forefront of policy discussions for economic development.