

# *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

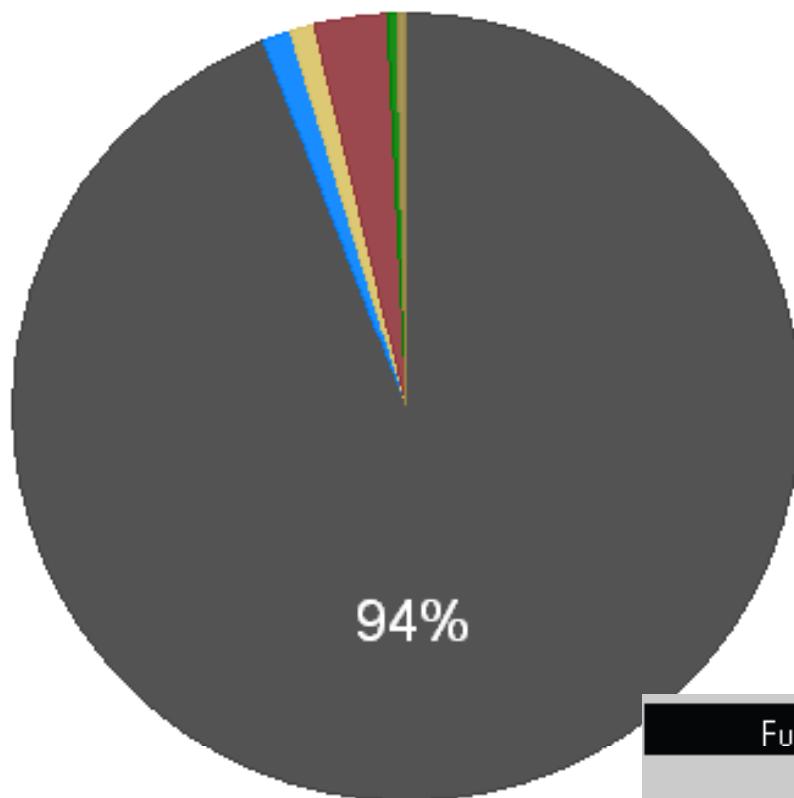
# Kentucky Energy Plan Development

- 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.
- 3<sup>rd</sup> largest coal producer in country (18,000 mining jobs); 3<sup>rd</sup> 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

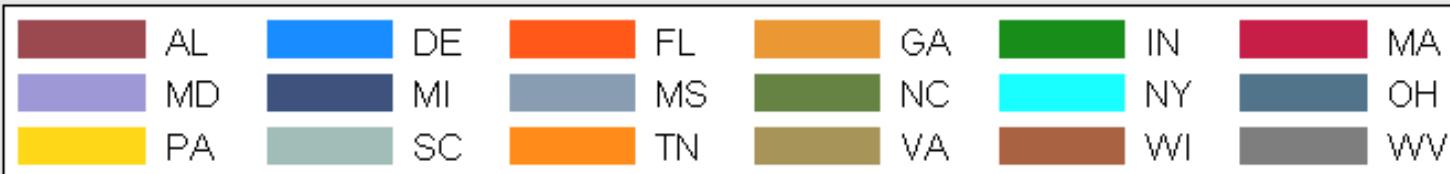
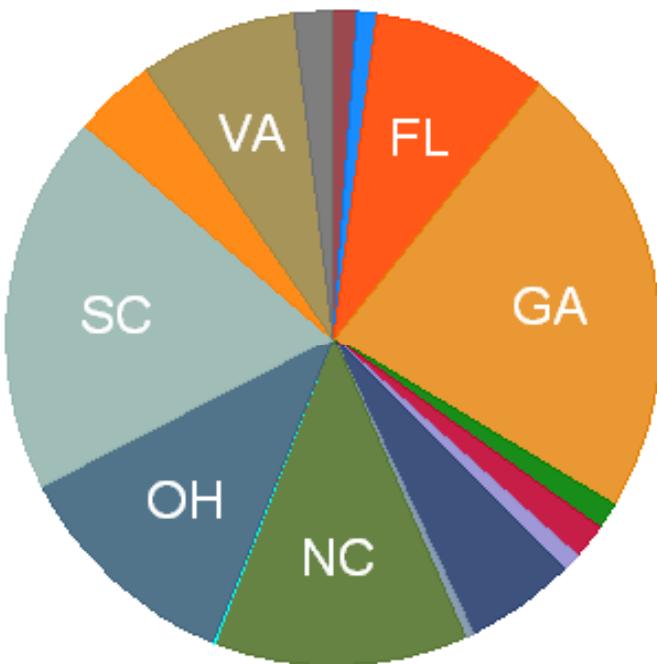


Electricity Generation  
by Fuel Type, 2008

| 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

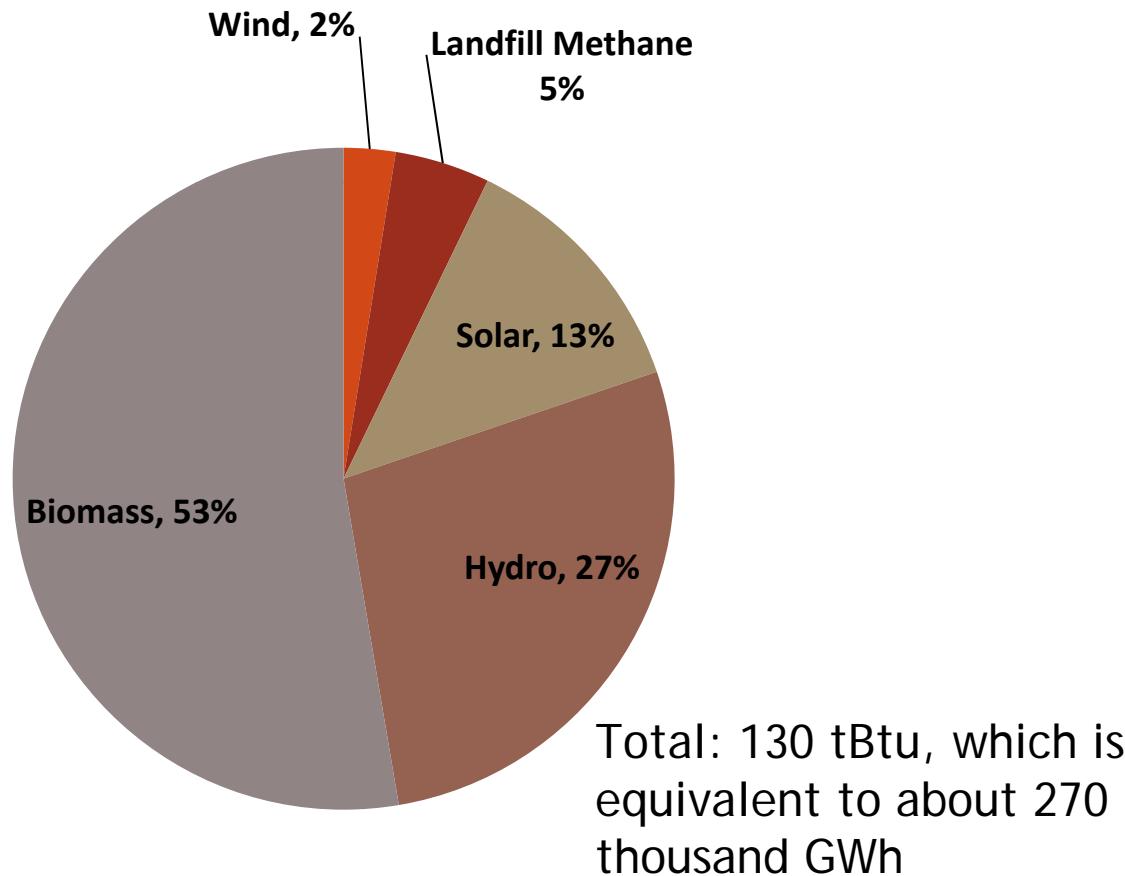
- **7-Point Comprehensive Energy Plan**
  - Improved energy efficiency; growth in renewable energy; including biomass; policy support for coal to liquid, coal to gas and carbon capture/storage; and examine the use of nuclear power for electricity generation in Kentucky.
- **Key Legislative Actions**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



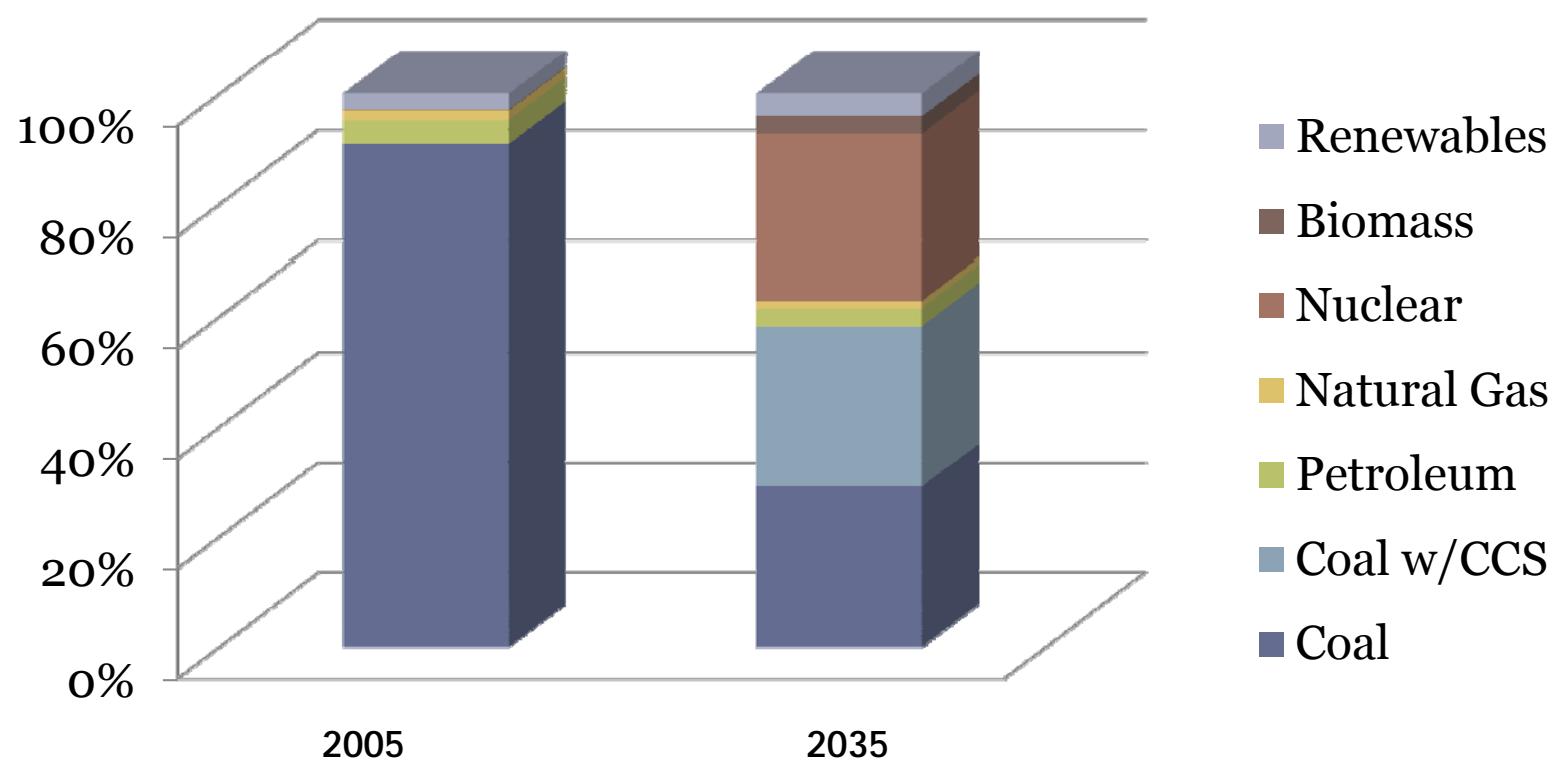
# Promising Areas

- **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.