Advanced Coal Technology Workgroup Meeting

Public Utility Commission's Perspective on Advanced Coal Technology
January 9, 2007

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Governor's Office of Energy Policy

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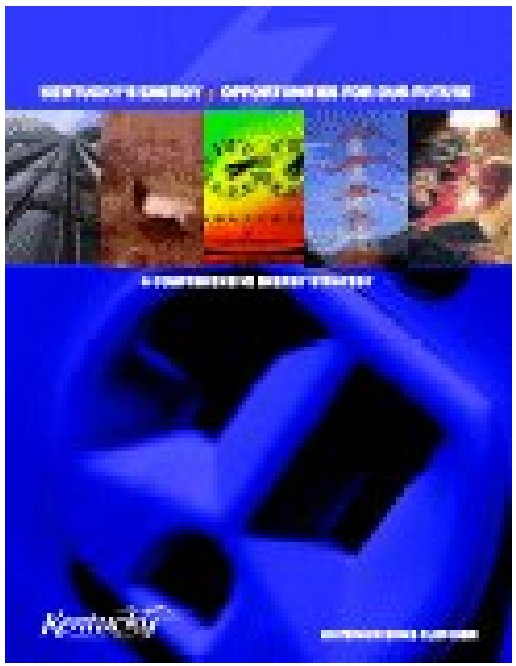
GOEP Mission

- Implement the 54 Recommendations in the *Governor's Comprehensive Energy Strategy*



Guiding Principles

- Maintain Kentucky's low cost energy
- Responsibly develop Kentucky's energy resources
- Preserve Kentucky's commitment to environmental quality

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Kentucky's Electricity Regulatory Environment

- Traditional, fully regulated state
- Certified territories—each electric utility regulated by the PSC has the exclusive right to serve those customers within its certified territory.
- Rate recovery, including reasonable return on capital investment
- Principle of "fair, just, and reasonable."

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Kentucky's Electric Utilities

- Investor Owned Electric Utilities—Four, each own their own generating resources
- Kentucky's Electric Cooperatives:
  - Two generation and transmission coops
  - 24 distribution cooperatives (five of which purchase power from TVA)
- Jurisdictional utilities serve 1.8 million customers; non-jurisdictional utilities serve 375,000

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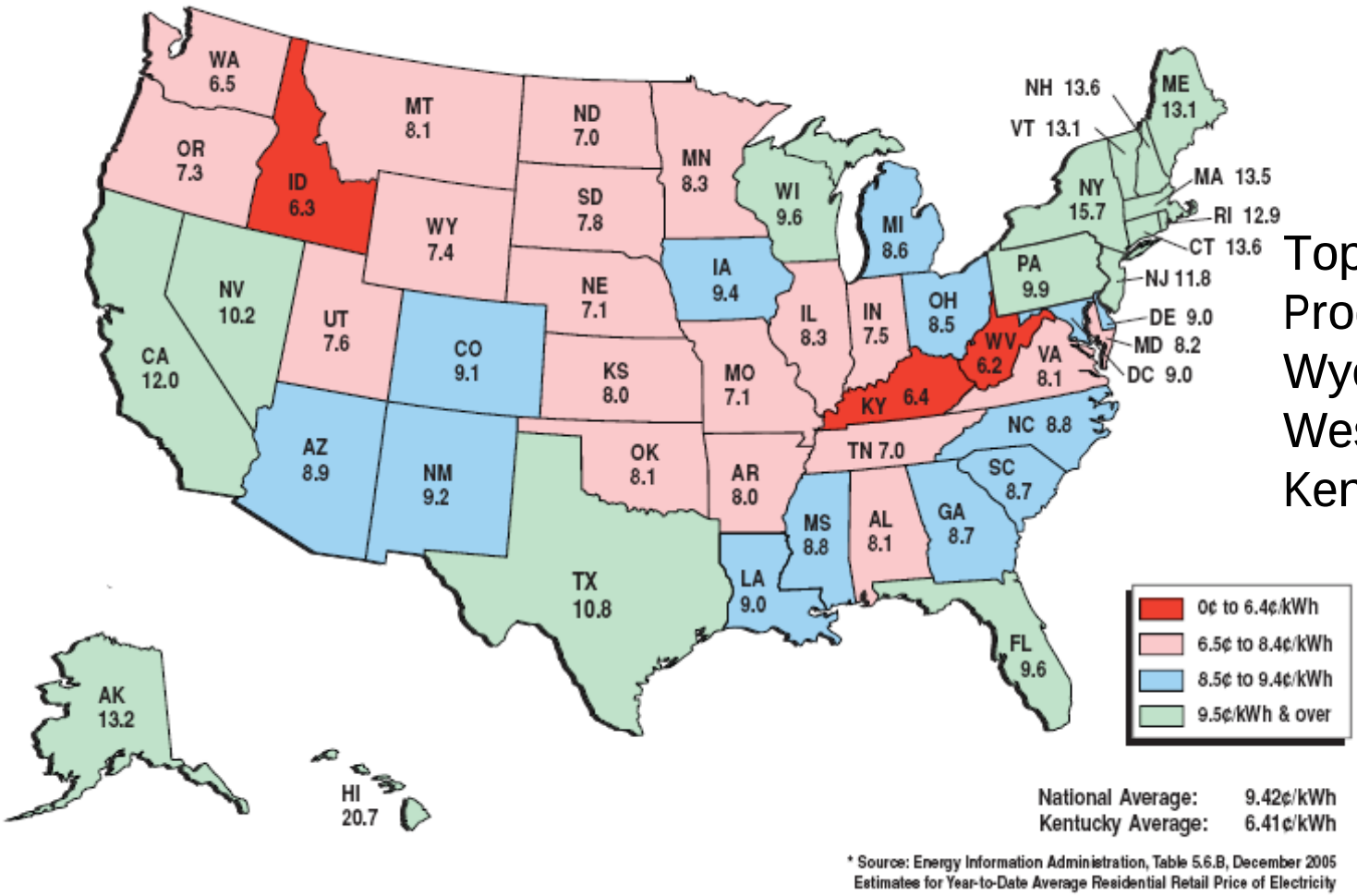
Nationwide Electricity Rates



Top 3 Coal-Producing States
Wyoming 7.4
West Virginia 6.2
Kentucky 6.4

National Average: 9.42¢/kWh
Kentucky Average: 6.41¢/kWh

* Source: Energy Information Administration, Table 5.6.B, December 2005 Estimates for Year-to-Date Average Residential Retail Price of Electricity

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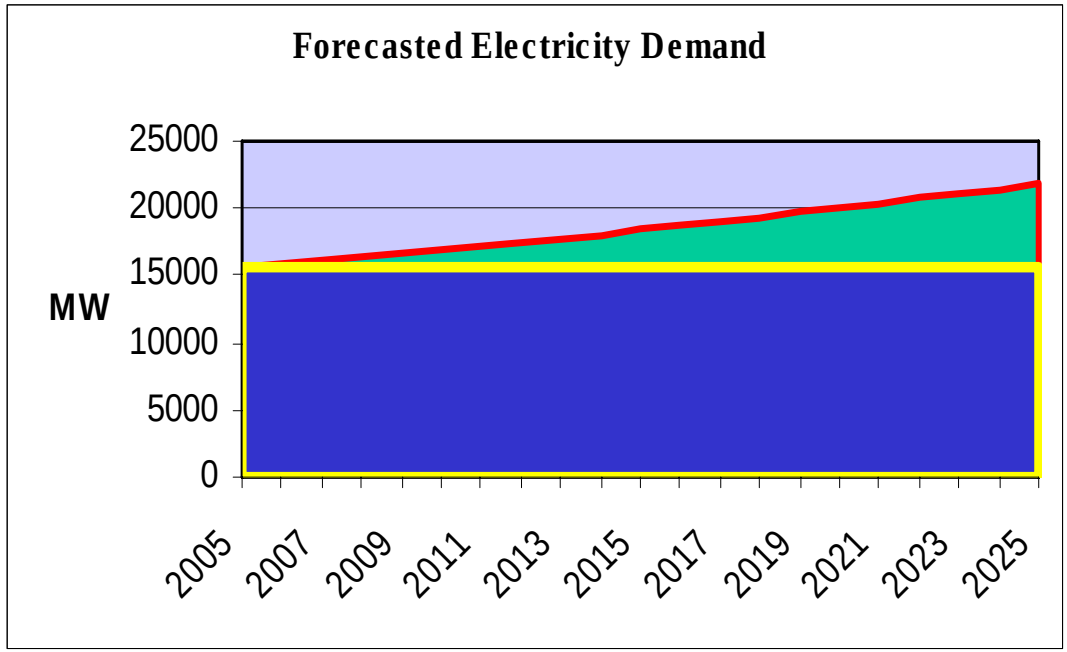
Electricity Generation

- PSC projected in 2005 that Kentucky will need additional 7000 MW by 2025
  - Coal likely to be fuel (federal & PSC estimates)
  - Does not assume any plants will be retired
  - Majority of Kentucky's generation assets > 35 years old



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Electricity Generation

- Regulated utilities have received certificates for SCPC and CFB
  - E.ON US plant qualified for $125 million tax credit through EPAct 05 program for clean coal generation (SCPC)
- An IPP is going through air permitting process for an IGCC (Cash Creek); an IGCC permit was granted, but plant was not built (Pioneer)
- Duke and AEP have said that they are committed to IGCC– have not petitioned for a certificate of public need and necessity for generation

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Regulatory Certainty—Cost Recovery

- Existing cost recovery for regulated utilities includes:
  - Fuel Adjustment Clause
  - Surcharge allowed to meet state and federal environmental compliance requirements
- CPCN process tends to favor proven technologies having lower cost

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Tension

How to encourage increased use of Kentucky resource (coal), while recognizing the importance of low electricity rates to economic development efforts in the state?

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2006 Legislation

- Failed proposal to allow rate recovery through a surcharge mechanism before and during construction (similar to CWIP)
  - Opponents—large industrial users & Consumer Advocacy/Attorney General
    - Argued that rate increases would be >35% and would begin before generation assets were in place
    - Argued that rate payers were paying for unproven technology
  - Proponents—utilities, environmental community
    - Argued this incentive would dampen rate shock and would allow utility to have access to less expensive capital, thus lowering overall cost

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Alternative Mechanisms

- Activities in other states:
  - Regulatory certainty/rate recovery
  - Bonding
  - Grants
  - Tax Incentives

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Alternative Mechanisms

- Public/Private Partnerships (FutureGen model)
- Consortia of utilities share a facility (intra or interstate)
  - Benefits
    - Shared risk
    - Demonstration of technology
  - Drawbacks
    - Funding
    - Willingness by utilities

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PolyGen Facilities

Gasification facilities with multiple outputs, including electricity

- Sale of ancillary products could reduce the cost of producing electricity, for example:
  - Liquid and gaseous fuels
    - Diesel, jet fuel, synthetic natural gas
  - Chemicals
  - Fertilizer

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Benefits of PolyGen Facilities

- Higher value-added potential
- Flexible product mix
- Access to federal incentives for alternative fuels in addition to federal clean coal technology incentives
- Synergies with bio-diesel and ethanol production
- More employees (more high tech jobs available)
- Carbon capture potential and sales
  - Enhanced oil and gas recovery
- Reduced emissions—organics, particulates, mercury (Hg removal at lower cost)

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Risks / Concerns

- Increased capital costs versus IGCC
  - Economies of scale compared to separate facilities
- Not your grandfather's power plant
  - Different set of skills needed to operate– part power plant, part refinery, part chemical plant
- Marketing of products and synthetic gas
  - Different business model as compared to regulated utility supplier
- Regulatory challenges
  - How would a PUC/PSC deal with these facilities?

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Conclusions

- Kentucky has relatively low electricity rates
- Kentucky wants to retain low rates while increasing the use of coal
- Kentucky will need new generation soon
- In order for that generation to be coal fueled, it must be “clean”
- The cost of that generation is going to substantial
- Adopt new technologies now? If so, who pays and how much?
- Are there alternative mechanisms to reduce or spread the risk of early adoption?

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