Kentucky’s Energy Resources

James C. Cobb
State Geologist and Director
Kentucky Geological Survey
University of Kentucky

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Kentucky’s Fossil Fuel Resources

• Coal - EKCF 53 B/11 B
  WKCF 36 B/20 B
• Natural Gas - 124 TCF
• Oil - 2.0 B
• Tar Sands - 3 billion barrels
• Coal Bed Methane - 1 TCF
• Oil Shale - 125 billion barrels
Kentucky Geology

<table>
<thead>
<tr>
<th>Geology</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pennsylvanian</td>
<td>Coal, oil, gas</td>
</tr>
<tr>
<td>Mississippian</td>
<td>Oil, gas</td>
</tr>
<tr>
<td>Devonian</td>
<td>Gas</td>
</tr>
<tr>
<td>Silurian</td>
<td>Oil, gas</td>
</tr>
<tr>
<td>Ordovician</td>
<td>Oil, gas</td>
</tr>
<tr>
<td>Cambrian</td>
<td>Gas</td>
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Kentucky Geology

Two major basins separated by an arch.
Kentucky Coal Production

[Graph showing coal production from 1991 to 2005 for Eastern KY and Western KY.]
Kentucky Energy Consumption

1,868 trillion btu

Coal: 50%

Oil: 36%

Gas: 12%

Renewable: 1%

Hydro: 1%

Fossil fuels: 98%

www.eia.doe.gov/emeu/states/sep_use/total/use_tot_ky.html
Kentucky Electricity Generation

Fossil fuels: 95%

Coal: 74%
Natural Gas: 11%
Dual Fired: 10%
Renewable: <1%
Oil: <1%

http://www.eia.doe.gov/cneaf/electricity/ipp/html1/t17p03.html
Kentucky Coal Fields

- $4.3 B Industry
- $184 M Sev. Tax
- 125 M tons
- $759 M wages

Western KY Coal Field

East KY Coal Field
## Oil & Gas Production 2005

<p>| | | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Oil</td>
<td>2.5 Mb</td>
<td>$121 M</td>
<td>$5 M tx</td>
</tr>
<tr>
<td>Gas</td>
<td>93 Bcf</td>
<td>$600 M</td>
<td>$24 Mtx</td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td>$721 M</td>
<td>$34 Mtx</td>
</tr>
</tbody>
</table>

- **Oil**: 2.5 Mb
- **Gas**: 93 Bcf
- **Tot.**: $721 M

### Map
- **None**: Light blue
- **Oil**: Green
- **Gas**: Red
- **Both**: Pink

*Image by KGS*
Structure: Top Basement

Note the very deep basin in Western Kentucky.
Kentucky Power Plants

- Coal
- Fuel Oil
- Natural gas
- Hydro
Proposed Power Plants and Expansion

- **Coal**
- **Gasified coal/biofuels**
- **Natural gas**
- **Waste coal**
With incentives and access to CO₂, Kentucky could double oil production by 2020.
Carbon Sequestration and FutureGen
Rough Creek Graben, Western Kentucky
Gas Potential of the Cambrian: Gas Potential of the Cambrian:
North Edge Eastern Rough Creek Graben

- Upper Section
  - Mounded reflectors: fan deposits
  - reservoir facies
  - depth: 14,000 ft.
  - thickness: 2400 ft.

- Lower Section
  - fan deposits
  - depth: 21,000 ft
  - thickness: 3600 ft
Thank You!