CCTR Activities in 2006

Marty Irwin
CCTR Director
765-494-7414, mwirwin@purdue.edu
https://engineering.purdue.edu/IE/Research/PEMKG/CCTR/

Center for Coal Technology Research
Energy Center at Discovery Park
PURDUE UNIVERSITY

CCTR Advisory Panel Meeting
Indianapolis, February 28, 2006
CCTR 2006 Outline

- INDIANA COAL REPORT 2006
- New Projects
- Project Funding
- Advisory Panel Structure & Functions
- State Strategic Energy Plan
- Obama-Lugar Amendment
- CCTR Advisory Panel Dates
INDIANA COAL REPORT 2006

Why have a COAL REPORT? To summarize the CCTR work in one volume – maybe every other year. Center is to address the vital issue of determining suitable coal technologies which will meet the economic and environmental priorities of Indiana.

1. CCTR PERSPECTIVES
2. NATIONAL AND INTERNATIONAL COAL DEMAND
3. INDIANA COAL DEMAND
4. REVIEW OF CCTR EVENTS 2004/5
5. SUMMARIES OF 2005 FUNDED PROJECTS
6. NEW COAL PROJECTS
Indiana Historic Fuel Prices

Coal price is falling in real terms. In Indiana coal = electricity. Our low energy price helps E D.
## Coal Use: Indiana (MTons)

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>64,998</td>
<td>60,744</td>
<td>-6.54%</td>
</tr>
<tr>
<td>Electric Generation</td>
<td>46,000</td>
<td>40,481</td>
<td>-12.00%</td>
</tr>
<tr>
<td>Industrial/ Commercial</td>
<td>11,306</td>
<td>12,740</td>
<td>12.68%</td>
</tr>
<tr>
<td>Coking Coal</td>
<td>6,232</td>
<td>6,944</td>
<td>11.42%</td>
</tr>
<tr>
<td><strong>Non-coking coal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Coal</td>
<td>17,314</td>
<td>16,614</td>
<td>-4.04%</td>
</tr>
<tr>
<td>Illinois Basin</td>
<td>5,767</td>
<td>5,050</td>
<td>-12.43%</td>
</tr>
<tr>
<td>Appalachian</td>
<td>4,145</td>
<td>2,393</td>
<td>-42.27%</td>
</tr>
<tr>
<td>Indiana</td>
<td>31,632</td>
<td>29,543</td>
<td>-6.60%</td>
</tr>
</tbody>
</table>
Projects & Funding
Setting the ground work

(1) Assessment of the Quality of Indiana Coal for Integrated Gasification Combined Cycle Performance (IGCC)

(2) Factors that Affect the Design & Implementation of Clean Coal Technologies in Indiana

(3) Development of Coking/Coal Gasification Concept to Use Indiana Coal for the Production of Metallurgical Coke & Bulk Electric Power

(4) The Impact of Environmental Legislation on the Competitiveness of Indiana Coal for New and Existing Facilities
Projects & Funding

(5) Coal Transportation Infrastructure In and Around Indiana

(6) Reclaiming Coal Fines from the Settling Ponds of Indiana

(7) The Obama-Lugar Barriers Study

(8) Role for FutureGen and CCT in Indiana

(9) Carbon Policy and Strategic Planning for Indiana
## Projects & Funding

<table>
<thead>
<tr>
<th>Follow-On Topics</th>
<th>Lower $</th>
<th>Upper $</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1), (2), (3)</td>
<td>$100K</td>
<td>$350K</td>
</tr>
<tr>
<td>New Topics (5), (6)</td>
<td>$123K</td>
<td>$123K</td>
</tr>
<tr>
<td>New Projects (7), (8), (9)</td>
<td>$150K</td>
<td>$250K</td>
</tr>
</tbody>
</table>

Total $383K $723K
CCTR Panel Functions

Provide advise so that the CCTR can develop technologies that can use Indiana coal in an environmentally and economically sound manner.
State Strategic Energy Plan

CCTR projects and activities form an integral part of the State Strategic Energy Plan. The coal technology objectives of the state plan, those objectives of the coal mining companies, utilities and other coal stakeholders will guide the CCTR program and staff members, and will provide the points of reference for future CCTR Advisory Panel meetings.
CCT & IGCC Investment

How should we offset the 15% to 20% higher plant costs (IGCC with spare gasifier) than PC, roughly the same operating costs.

• Stable coal prices yield stable electric prices.
• Electricity is still the basis of the energy industry
• Federal & State tax breaks
• Indiana incentives
• SB 29 (2003): up to 3% point adder
• HB 378: Investment Tax Credits against utility receipts tax for IGCCs
• Develop additional Revenue Streams
• Potential feedstock for chemical plants and by-products
FutureGen ~ Illinois & Indiana MOU

The Memorandum of Understanding (MOU) between the State of Illinois and the State of Indiana (July 20, 2005) seals the agreement between Illinois and Indiana for a strategic partnership to establish the FutureGen project in the Midwest.
Obama-Lugar Amendment

Coal Fuel Alliance (CFA) Response to the Obama-Lugar Amendment

This proposal requests $150,000 from CCTR to fund Purdue University’s Energy Center portion of a three state coalition formed to pursue $85 million in funding over five years which was made possible by an amendment to the Energy Policy Act of 2005.
Obama-Lugar Amendment

Three Universities (Southern Illinois University, Purdue University, and University of Kentucky) of the “Coal Fuel Alliance”, are to

“…evaluate the commercial and technical feasibility of advanced technologies to convert Illinois Basin coals into Fischer-Tropsch, (FT) and other transportation fuels”

$85M authorized for research and a test center from DOE

DOD has immediate need for 400,000 bbls/day for their use
CCTR Panel Dates

Tuesday, **February 28, 2006**
Indianapolis

Tuesday, **May 30, 2006**
Terre Haute

Tuesday, **August 29, 2006**
Indianapolis

Tuesday, **November 28, 2006**
Purdue Calumet or PNC
2006 ~ Here it is

• Set the ground work for the State to develop new markets for Indiana coal.
• Discuss the issues, find the way through the barriers and let the market do the rest.
All CCTR reports and power-point presentations are available at the CCTR website.

Purpose

Senate Enrolled Act No. 29, passed during the 2002 Indiana legislative session,