Indiana Energy Status

presented to
Indiana Chamber of Commerce
Conference on Energy Management
June 19, 2008

presented by
Doug Gotham
State Utility Forecasting Group
Which sector uses the most electricity in Indiana?

- Residential
- Commercial
- Industrial
2006 Residential Electricity Sales (MWh)
2006 Commercial Electricity Sales (MWh)
2006 Industrial Electricity Sales (MWh)
2006 Total Electricity Sales (MWh)
Which sector uses the most electricity in the U.S.?

- Residential
- Commercial
- Industrial
Approximately what percentage of electricity used in Indiana comes from coal?

- 85%
- 90%
- 95%
Fuel Sources for Electric Power in 2005

- Indiana numbers do not include out-of-state generators that serve Indiana customers
  - Cook (nuclear) in Michigan
  - Madison (natural gas) in Ohio
  - Trimble County (coal) in Kentucky

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Indiana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>50 %</td>
<td>96 %</td>
</tr>
<tr>
<td>Nuclear</td>
<td>20 %</td>
<td>0 %</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>15 %</td>
<td>3 %</td>
</tr>
<tr>
<td>Petroleum</td>
<td>6 %</td>
<td>0 %</td>
</tr>
<tr>
<td>Renewables</td>
<td>8 %</td>
<td>0.4 %</td>
</tr>
</tbody>
</table>
In 2006….

• Indiana produced 3.2 % of the electricity generated in the U.S.
• Indiana produced 6.2 % of the electricity generated from coal in the U.S.
• Indiana produced 0.3 % of the electricity generated from natural gas in the U.S.
What percentage of Indiana’s coal-fired generating capacity is at least 30 years old?

- Less than 50%
- More than 50%
Coal-fired Generating Capacity by Decade Installed

<table>
<thead>
<tr>
<th>Decade</th>
<th># of units</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940s</td>
<td>1</td>
<td>45</td>
</tr>
<tr>
<td>1950s</td>
<td>20</td>
<td>1847</td>
</tr>
<tr>
<td>1960s</td>
<td>12</td>
<td>2275</td>
</tr>
<tr>
<td>1970s</td>
<td>17</td>
<td>6938</td>
</tr>
<tr>
<td>1980s</td>
<td>9</td>
<td>5736</td>
</tr>
<tr>
<td>1990s</td>
<td>2</td>
<td>289</td>
</tr>
</tbody>
</table>
Projected Resource Requirements

Source: *Indiana Electricity Projections: The 2007 Forecast*, State Utility Forecasting Group
Approximately what fraction of coal burned in Indiana is mined in Indiana?

- 1/3
- 1/2
- 2/3
Generation from which fuel source is being (or is proposed to be) added to the Indiana mix?

- Coal
- Natural gas
- Wind
Coal Developments

- IMPA share of Prairie State (IL), Trimble County (KY), and Thoroughbred (KY)
- Duke Energy integrated coal gasification unit at Edwardsport
- Proposed syngas facility
Natural Gas Developments

- Hoosier Energy – Wabash Valley Power proposed purchase of Holland combined cycle facility (IL)
- NIPSCO proposed purchase of Sugar Creek combined cycle facility (IN)
Wind Developments

• Benton County Wind Farm
  – Duke Energy and Vectren
• Fowler Ridge Wind Farm
  – Indiana Michigan
• Hoosier Wind Farm
  – Indianapolis Power & Light
• NIPSCO pending purchases (IA and MN)
Indiana ranks in the top 5 in terms of emissions of CO$_2$, SO$_2$, and NO$_x$
2006 CO$_2$ Emissions (metric tons)
2006 NO\textsubscript{x} emissions (metric tons)
2006 SO$_2$ emissions
(metric tons)
Emissions Trends for Indiana Electricity Industry
(normalized to 1990 values)
According to EIA, a state has 11.56 MWh of generation and 10.57 MWh of sales: is this state an exporter or an importer?

- Exporter
- Importer
- Neither
- Both
According to EIA, Indiana has 130 MWh of generation and 106 MWh of sales: is Indiana an exporter or an importer?

- Exporter
- Importer
- Neither
- Both
Indiana ranks where in terms of lowest retail electricity rates?

- Top 5
- 6 – 10
- 11th or higher
2006 All Sector Electricity Retail Price (cents/kWh)

IN 6.46 - rank #10

U.S. average 8.90
2006 Residential Electricity Retail Price (cents/kWh)

IN 8.22 - rank #13

U.S. average 10.40
2006 Commercial Electricity Retail Price (cents/kWh)

IN 7.21 - rank #17

U.S. average 9.46
2006 Industrial Electricity Retail Price (cents/kWh)

IN 4.95 - rank #16

U.S. average 6.16
Extra Credit Take Home Essay Question

• What is happening to the price of coal and natural gas and why?
Coal Spot Price (from EIA)
Natural Gas Futures
($/mmBtu)