21st Century Coal – Kemper Project IGCC

Southern Legislative Conference 2011
Jim Ellington – Mississippi House of Representatives
What is “IGCC?”

- IGCC stands for “Integrated Gasification Combined Cycle.”
- It’s a combined-cycle power plant and a coal-gasification plant designed specifically to work with each other.
- There are currently only two of these plants in the U.S.
TRIG™ Technology

IGCC Plant Isometric with CO2 Capture
Why “IGCC?”

- Use coal as fuel for highly efficient combined-cycle plant
- Clean coal technology - less NOx, SO$_2$ and Mercury
- Less CO$_2$ than conventional coal-fired power plants
- Greatest potential for future CO$_2$ capture
Mississippi Power Generating Fleets

<table>
<thead>
<tr>
<th></th>
<th>Mississippi Power</th>
<th>Southern Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers</td>
<td>190,000</td>
<td>4.4M</td>
</tr>
<tr>
<td>Generating Capacity</td>
<td>3,200MW</td>
<td>42,000MW</td>
</tr>
<tr>
<td>Employees</td>
<td>1,200</td>
<td>26,000</td>
</tr>
</tbody>
</table>
MPC Retail Fuel Rate History

Total Fuel Rate Increase = 135%
Natural Gas vs. Lignite Volatility

Notes:
1. Volatility represents 5% - 95% confidence interval
2. Fixed Gas Transportation and variable transportation are included in gas price
Diversity of Fuel is Critical

Energy Generated 2008
- Moderate Risk
  - Natural Gas: 33%
  - Coal: 67%

Without Kemper 2020
- High Risk
  - Natural Gas: 68%
  - Coal: 32%

With Kemper 2020
- Moderate Risk
  - Natural Gas: 46%
  - Coal: 31%
  - Lignite: 23%
The Right Mix for Mississippi’s Energy Future.

natural gas + coal + mississippi lignite
IGCC Plant at Kemper County

- Most advanced clean coal technology
- May 2014 In-Service Date
- 582 MW Capability
- CO2 Capture for Enhanced Oil Recovery
  - 65%, equivalent to NGCC
- Fuel
  - Mississippi Lignite
- $2.4 billion project estimate
Enabling Legislation

- Mississippi SB 2793 – Base Load Generation
  – Signed by Governor Barbour May 9, 2008

- Mississippi HB 1693 – Species Exemption
  – Signed by Governor Barbour April 6, 2009
Mississippi Regulatory Process

- Original petition filing date – January 16, 2009
- Needs evaluation
  - Hearings conducted October 4-9, 2009
  - Order issued November 9, 2009
- Resource determination
  - Hearings conducted February 1-5, 2010
  - Certificate issued June 3, 2010
# Jobs – Construction, Plant & Mine

<table>
<thead>
<tr>
<th>Type/Number</th>
<th>Peak</th>
<th>Average/ Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Construction</td>
<td>1,000</td>
<td>500</td>
</tr>
<tr>
<td>Mine Construction</td>
<td>160</td>
<td>240</td>
</tr>
<tr>
<td>Plant Operation</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Mine Operation</td>
<td>180</td>
<td>180</td>
</tr>
</tbody>
</table>
Workforce/Jobs

• MS Dept. of Employment Security (MDES) partnered with Mississippi Power to open a WIN Job Center in DeKalb, MS.

• MDES has database to identify local talent by skill and/or craft; available in generic form for all potential contractors.
Kemper Community Plan Objectives

• Hire Local
  – Contractors
  – Employees

• Coordinate Education Initiatives
  – Pre-school
  – Workforce and secondary

• Economic & Community Development
  – Comprehensive Strategic Plan
  – Leadership Development

• Kemper County Foundation
Mississippi’s Economic Engine

Coal Gasification with CO₂ capture

Enhanced Oil Recovery

CO₂ capture

Low Cost Energy

CO₂ Sales

Mine-mouth Lignite

Economic Growth

Oil Production

Oil

Legend:
- CO₂ Source
- CO₂ Storage
- Pipeline
- Proposed Pipeline
- Existing Pipeline
- CO₂ Revenue
- CO₂ Export
- CO₂ Import

Map of Mississippi showing relevant areas.
Kemper IGCC Summary Schedule

On Time and On Budget

2006  2007  2008  2009  2010  2011  2012  2013  2014

- Development
- Procurement
- Design
- Construction
- Startup
Questions?