Building New Coal Generation/SNG
Regulated vs Unregulated

August 22, 2006
World’s Largest Coal Company: Peabody’s Portfolio of Operations

<table>
<thead>
<tr>
<th>Market Position</th>
<th>Sales</th>
<th>Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming PRB</td>
<td>#1</td>
<td>126</td>
</tr>
<tr>
<td>Midwest</td>
<td>#1</td>
<td>38</td>
</tr>
<tr>
<td>Southwest</td>
<td>#1</td>
<td>18</td>
</tr>
<tr>
<td>Colorado</td>
<td>#1</td>
<td>11</td>
</tr>
<tr>
<td>Appalachia</td>
<td>#6</td>
<td>14</td>
</tr>
<tr>
<td>Queensland</td>
<td>#5</td>
<td>8</td>
</tr>
<tr>
<td>Venezuela</td>
<td>#1</td>
<td>7</td>
</tr>
</tbody>
</table>

Millions of short tons

30% ownership in Econo-Power International

- PRB and Illinois Basin coal transformed into low-Btu gas
- Cost effective at $5 to $6/mmBtu

Agreement with Arclight to evaluate Illinois location for pipeline-quality gas

- ConocoPhillips and Fluor participating in technology and plant design
- Pipeline-quality natural gas competitive as low as $7 per mmBtu

High gas prices point to need for coal-to-liquids

- Coal-to-liquids at $35 – $40/barrel oil
- Peabody partnership with Rentech for coal to liquids plant

Peabody part of FutureGen Industrial Alliance

- Goal: Generation and hydrogen; near-zero emissions; CO2 sequestration
- Alliance includes Southern Company, AEP, Huaneng
- $700 million from DOE; $250 million from industry
Global Coal Use Soars 25%, or 1.1 Billion Tons, in 3 Years

Three-Year Percent Change in Global Energy Consumption

2001-2004 Change

- Nuclear: 3.9%
- Oil: 5.9%
- Hydro: 7.6%
- Natural Gas: 9.1%
- Coal: 25.3%

Developing Countries Will Greatly Expand Per-Capita Energy Use

**Electricity Usage per Capita**

**Passenger Vehicles per Capita**

Per-Capita Coal Use Just 1/3rd (China) and 1/9th (India) the U.S. Level

Over 51% of U.S. Electricity is from Coal
Source of Low Cost Electricity in US

Retail Cost Per kWh & Percent of Coal Generation

Over 51% of U.S. Electricity is from Coal
Source of Low Cost Electricity in US

Retail Cost Per kWh & Percent of Coal Generation

|$\$ = \text{average retail price per kilowatt hour through 5/06}$

|$\% = \text{percent of total generation from coal for CY 2005}$

Source: Energy Information Administration, August, 2006.
Coal Based Electricity Has Increased 80% Since ‘80 While Emissions Have Been Significantly Improved

Reductions continue with existing plants

The Path Toward Near-Zero Emissions from Coal-Fueled Generating Plants

Emissions from Coal-Fueled Generating Plants

- **Sulfur Dioxide**
- **Nitrogen Oxide**

<table>
<thead>
<tr>
<th>Category</th>
<th>Sulfur Dioxide</th>
<th>Nitrogen Oxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Average 2005</td>
<td>0.93</td>
<td>0.32</td>
</tr>
<tr>
<td>Clean Air Interstate Rule 2010</td>
<td>0.39</td>
<td>0.16</td>
</tr>
<tr>
<td>Clean Air Interstate Rule 2015</td>
<td>0.26</td>
<td>0.12</td>
</tr>
<tr>
<td>Existing IGCC (Permit Level)</td>
<td>0.17</td>
<td>0.08</td>
</tr>
<tr>
<td>New Midwest Permit Limit</td>
<td>0.182</td>
<td>0.07</td>
</tr>
<tr>
<td>New PRB Plant Permit Limit</td>
<td>0.10</td>
<td>0.06</td>
</tr>
<tr>
<td>New IGCC Projection</td>
<td>0.03</td>
<td>0.06</td>
</tr>
<tr>
<td>Near-Zero FutureGen Goals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Estimate
Source: EPA’s Clean Air Markets database; EIA 2005 Annual Energy Outlook; GE Energy; SFA Pacific.
Regulated vs Unregulated Coal Generation or SNG
It Matters How Much Risk You Can Manage

- Capital costs risk – Coal project costs up by 30 – 50% over the last 2 years for steel, copper and labor - $1 – 3 billion in project size (600 – 1,600 MW)
  - Regulated generation/SNG can pass risk to ratepayers with PUC approval
  - Unregulated generation/SNG needs capital cost “managed” much more tightly to finance
- Technology risk – Usually shows up in the form of operating performance risk – How do you manage operating availability if its only 70% versus 90% expected?
  - Regulated generation/SNG can pass poor performance along to ratepayers with PUC approval
  - Unregulated generation/SNG manage with performance guarantee
- Pay higher capital costs (10 – 20%) for potential new regulations
  - Regulated generation can pass along to ratepayers with PUC approval
  - Unregulated generation few avenues to offset unless legislation
- Selling output
  - Regulated generation/SNG implies contract
  - Unregulated generation/SNG must be explicit long term agreement (15 -20 years)
- Manage on going fuel cost fluctuations due to technology inflexibility – Some new technologies struggle with the low cost coals
- Plant location/fuel source – if long term fuel cost an issue, tend to locate for fuel advantages, mine-mouth or on water
Major Coal Supply Basins

Cost and Location Favor New Coal Plants in Illinois Basin (East) and Western/PRB (West)

1. Northern Appalachia
   - Medium-High Cost
   - Stable Reserves
   - Very Transportable

2. Northern Lignite
   - Low-Medium Cost
   - Stable Reserves
   - Not Transportable

3. Central Appalachia
   - High Cost
   - Declining Reserves
   - Transportable (Varies)

4. Southern Lignite
   - Medium Cost
   - Somewhat Abundant
   - Not Transportable

5. Illinois Basin
   - Medium Cost
   - Abundant Reserves
   - Limited Transport

6. Western Coals
   - Medium Cost
   - Somewhat Abundant
   - Transportable (Varies)

7. Powder River Basin
   - Low Cost
   - Abundant Reserves
   - Very Transportable
Thoughts on New Coal Generation Technology Choice

- Do you have a large government subsidy or ratepayers “guaranteeing” payment of extra costs?
- IGCC hold great promise but not commercially viable at this time for unregulated generation without subsidies
- IGCC technology has not been scaled up to large coal size > 1,200 MW
- IGCC costs significantly more
- Supercritical units on most coals are more efficient than IGCC
  - Illinois Basin, lignite and PRB (low cost coals) not fuels of choice for IGCC
  - Most IGCC run on expensive “designer” coals or petcoke (not coal)
- Coals with high ash content (Illinois Basin and lignite) difficult for IGCC technology. Concerns exist about compatibility.
12

Net Export/Import of Electricity per State

Major Electricity Export States Are Coal States

Source: Energy Information Administration, March 2006.
New Coal Development
Centered Around Coal Producing States

MW of Announced Coal Plants

Source: DOE/NETL 6/21/06
Lowest Cost Baseload Option
Location Matters – Mine Mouth

Michigan Delivered Coal

Source: Energy Information Administration Annual Energy Outlook 2005 & Peabody analysis; assumes 90% capacity factor, 10.8% weighted cost of capital, 30-year investment life, delivered fuel cost as shown above, latest environmental technologies & EIA’s estimates of capital and non-fuel costs.
PRAIRIE STATE ENERGY CAMPUS
New Low-Cost, Clean Coal Generation

- 40 miles Southeast of St. Louis in Illinois
- 1,600 MW supercritical generating plant fueled by 6+ million ton/year adjacent mine
- Final air permit received April 2005, now in appeal process expecting US EPA Board of Appeals decision within a month
- All other permits needed to operate have been issued by the initial permitting agency
- Cleanest coal Plant in Illinois and 7% – 20% more CO₂ efficient than existing coal fleet
- 47% of project owned by a group of Midwestern municipals & cooperatives
- Additional 6% of ownership is committed
- Targeting generation in the 2011 timeframe
Prairie State Partners Serve Nearly 2 Million People
In 5 States, Almost All in the Midwest ISO

1. Wolverine Power Supply Cooperative, Inc.
   - Abbreviation: WPSC
   - 400,000 people served

2. Northern Illinois Municipal Power Agency
   - Abbreviation: NIMPA
   - 52,000 people served

3. Missouri Joint Municipal Electric Utility Commission
   - Abbreviation: MJMEUC
   - 800,000 people served

4. Soyland Power Cooperative, Inc.
   - Abbreviation: Soyland
   - 156,000 people served

5. Indiana Municipal Power Agency
   - Abbreviation: IMPA
   - 340,000 people served

6. Kentucky Municipal Power Agency
   - Abbreviation: KMPA
   - 54,000 people served
Supercritical Pulverized Coal vs. IGCC
Analogy to the Family Car

- Family of 6 needs a new car and has annual income of $60,000 and lives in rural area with few neighbors so the car must run well
- Decision tried and true Chrysler/Ford/GM minivan or new type of van with new type of engine
- Issues
  - Tried and true van costs 20% less ($30,000 versus $36,000)
  - Spouse has to use van to get kids to school everyday as well as run errands, little or no alternatives if van does not run.
  - Operating history shows “new van with new engine” 15 – 30% more unavailable than tried and true model.
  - Mechanics for tried and true model all over, new van with new engine requires specialty maintenance that only a few in the US can do
  - Operating the new van is very different than tried and true to the point that spouse must take special driving classes to operate
  - Tried and true van has complete warranty for 10 years and 100,000 miles; new van has 60 day warranty
  - Tried and true gets 15% better gas mileage than old cars, is equal to “new van” and in many cases better gas mileage except when using the designer gas that only a few stations carry
  - Both cars have great environmental performance – 70% lower than average today and exceed 2015 government standards with new van being slightly better
  - New van will perform better if all tail-pipe emissions must be captured and stored, but in both cases it will double the cost of operating the vehicle to the point you are unsure that vans make sense

Which car is your spouse going to let you buy?