The Coal Supply Chain:

A Western Utility Perspective

Susan Arigoni
Vice President, Fuels
Xcel Energy
Northern States Power Company - Minnesota

Public Service Company of Colorado

Southwestern Public Service

5th Largest Combination Electric and Gas Utility (based on customers)

- Electric Customers: 3.3 million
- Gas Customers: 1.8 million

Northern States Power Company - Wisconsin
Xcel Energy Generation Fuel Mix

- Coal: 52%
- Gas and Oil: 27%
- Nuclear: 12%
- Renewables: 9%

Coal 52%
Gas and Oil 27%
Nuclear 12%
Renewables 9%
Xcel Energy’s Commitment to Coal

- 32 million ton annual consumption
- 5th largest consumer in the U.S.
- 750 MW new coal-fired facility on line 2009
Coal is essential to meeting our generation requirements

- 100% western coal
  - PRB 83%/Colorado 17%
  - Boiler designs limit fuel switching

Delivery shortfalls usually permanent

- Coal stocks considered a backstop to transportation and mine failures
  - Plant inventory optimization must balance cost and reliability
  - Regulatory review
2005 – 2007 NSP Delivered Coal Costs

Rail Transportation Costs Increasing

$0.0
$50.0
$100.0
$150.0
$200.0
$250.0
$300.0
$350.0
Railroad Performance

Average Speed of Coal Unit Trains, 12 Week Trailing Average

Supply Chain Disruptions

- Derailments
- Mine outages or production derates
- Utility dumper outages
- Railroad crew work rules
- Weather
- Poor communication
- Insufficient trainsets
PRB Rail Transportation Challenges

- Capacity issues are route specific
- Improvements from recent joint line expansion
  - Continued vigilance required
- Need reserve capacity to handle surges or maintenance issues
- Performance guarantees
Utility Initiatives

- Coal handling investments at plants
- Additional resources
- Re-assess optimal inventory
- Increased participation
  - Industry groups
  - Legislative
Cycle Time Management

Plant Cycle Time Graph
Cycle Time Calculated from Load-to-Load

<table>
<thead>
<tr>
<th>Travel Time</th>
<th>Arrival - Unload</th>
<th>Unload</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>186:48</td>
<td>24:11</td>
<td>22:36</td>
<td>234:51</td>
</tr>
<tr>
<td>176:26</td>
<td>8:44</td>
<td>13:48</td>
<td>198:57</td>
</tr>
</tbody>
</table>

Average for all trains: 234:51 hours
Average for last ten trains: 198:57 hours

Last Ten Train Average - 199 hours
All Train Average - 235 hours
Best Practices

- Cycle time analysis
- Shipment calendars
- In-pit crushing and overland conveyors
- Early notification of quality deviations
- Mid month assessment of deliveries and corrective action
- Supply diversification
Future Issues

- Capacity for growth
  - Per CRS study, capacity issues difficult to address due to lack of data

- Reliability

- Cost increases

- GHG Legislation

- Resolution of PRB joint line dust issue