Utility Segment Update

SEPTEMBER 22, 2016, STB RETAC MEETING
Overview

- Compare 2015 and 2016 Utility Industry Survey Results
- Summary of Observations from Survey
- Aging Coal Fleet
Utility Industry Survey

Special Thanks to:

National Coal Transportation Association

For conducting the Utility Segment survey and compiling the data
Region the majority of your coal-fired generation located

1. West
2. Midwest
3. South
4. Southeast
5. Northeast
Year-to-Date results

2016 VERSUS 2015
YTD actual coal-fired generation is...

1. Above forecast
2. Similar to forecast
3. Below forecast

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
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<tbody>
<tr>
<td>Above</td>
<td>0%</td>
<td>-</td>
</tr>
<tr>
<td>Similar to</td>
<td>29%</td>
<td>21%</td>
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<tr>
<td>Below</td>
<td>71%</td>
<td>79%</td>
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YTD actual rail deliveries are...

1. Above forecast
2. Similar to forecast
3. Below forecast
Rail cycle times are...

1. Faster than previous year
2. Similar to previous year
3. Slower than previous year

- 2015: Faster than previous year - 56%
- 2016: Faster than previous year - 67%
- 2015: Similar to previous year - 33%
- 2016: Similar to previous year - 22%
- 2015: Slower than previous year - 11%
- 2016: Slower than previous year - 11%
Are you currently storing railsets?

1. Yes
2. No
Current coal inventory (average days of burn on hand for generators that run all year)

1. >70
2. 50 – 70
3. 30 – 50
4. <30

![Bar chart showing coal inventory distribution for 2015 and 2016.](chart.png)
Survey Observations

- Generation from coal
  ◦ Over 70% of generators are consuming less coal in the last two years than forecasted

- Rail Deliveries
  ◦ Slightly more coal being delivered in 2016
    ◦ Less sets being stored
    ◦ Faster cycle times

- Coal Inventory
  ◦ Over 60% generators have at least 50 days on hand
    ◦ Near 40% increase from a year ago
The need for more flexibility will ultimately...

1. Drive the market to include more flexibility in long term supply and transportation agreements

2. Drive utilities to short term Agreements and/or spot purchases

3. Both in equal measure

4. Neither

<table>
<thead>
<tr>
<th>ANSWER 1</th>
<th>ANSWER 2</th>
<th>ANSWER 3</th>
<th>ANSWER 4</th>
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<tbody>
<tr>
<td>16%</td>
<td>26%</td>
<td>58%</td>
<td>0%</td>
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2016
Conclusion

-Demand is down driven mainly by competition from natural gas

-Coal playing less of a “baseload” role and serving a larger “intermediate” dispatch role

-“Ratable Delivery” can be a challenge in this environment

-Need for a flexible delivery system that can rapidly respond to dynamic demand for coal (coal vs. natural gas economics)
Aging Coal Fleet
Aging coal fleet

• Major driver in coal retirements 2015-2020
  ◦ 14 GW of coal-fired plants went offline in 2015

• 2016 retirement coal capacity
  ◦ PJM 477 MW
  ◦ MISO 2.2 GW

• By 2020, some 65 GW of plants will be 50 years or older

SNL “Chart Watch: Coal plant retirements reached zenith in 2015, but more to come”, March 7, 2016
Discussion, Questions, and Comments
Additional Data
Coal demand is down but isn’t 700 MMT of coal still a lot of coal?

1. Yes
2. No

Bar chart showing 84% Yes and 16% No for 2016.
Where do you think the export market will be in the upcoming year?

1. <30 MMT
2. 30-50 MMT
3. 50-70 MMT
4. >70 MMT
YY actual coal-fired generation is...

1. Above previous year
2. Similar to previous year
3. Below previous year

![Bar chart showing the percentage of YY actual coal-fired generation for 2015 and 2016.
- Above: 25% for 2015, 25% for 2016
- Similar to: 29% for 2015, 25% for 2016
- Below: 6% for 2015, 50% for 2016]
YY actual rail deliveries are...

1. Above previous year
2. Similar to previous year
3. Below previous year

![Bar Chart]

- Above previous year: 41% (2015), 38% (2016)
- Similar to previous year: 24% (2015), 38% (2016)
- Below previous year: 35% (2015), 25% (2016)
YY current coal inventory is...

1. Above previous year
2. Similar to previous year
3. Below previous year

![Chart showing the percentage of coal inventory for 2015 and 2016.]

- **Above**: 65% in 2015, 50% in 2016
- **Similar to**: 50% in 2015, 50% in 2016
- **Below**: 24% in 2015, 12% in 2016, 0% in 2016
MISO Fuel Mix

2013 MISO Fuel Mix
- Coal: 70.7%
- Nuclear: 12.4%
- Gas: 7.0%
- Wind: 7.7%
- Other: 2.2%

2014 MISO Fuel Mix
- Coal: 58.7%
- Nuclear: 15.9%
- Gas: 15.4%
- Wind: 6.3%
- Other: 3.7%

2015 MISO Fuel Mix
- Coal: 51.3%
- Nuclear: 16.1%
- Gas: 20.5%
- Wind: 6.9%
- Other: 5.2%

2016 YTD MISO Fuel Mix
- Coal: 45.5%
- Nuclear: 16.6%
- Gas: 24.2%
- Wind: 7.5%
- Other: 6.3%