A Bleak Future for Colstrip Units 1 and 2 Has Become Much Bleaker
Who Am I

• Attorney, Consultant, Expert Witness and Electric Resource Planning and Ratemaking Issues for more than 40 years.

• Have testified as an expert witness in 150 cases before state and federal regulatory commissions

• Currently Director of Resource Planning Analysis for the Institute for Energy Economics and Financial Analysis (IEEFA)
Recent History

• IEEFA June 2015 report concluded that Talen Montana, owner of 50% of Units 1& 2, would earn relatively small profits in coming years or, even more likely, would experience significant financial losses.

• Original response from Puget Sound Energy was that Talen is making money on Colstrip and is in for the long haul.

• Now, Puget Sound admits Talen is “hemorrhaging” money at Colstrip and may be looking to get out.
Findings of Updated IEEFA Analysis

• Talen will experience very significant financial losses due to Colstrip 1&2.

• Generating power at Colstrip 1&2 is substantially more expensive for Puget Sound’s ratepayers than buying power at Mid-Columbia Hub.

• Talen’s share of Colstrip 3 has little to negative value.
What Has Changed in Last Eight Months?

- Natural gas forward prices are lower and are expected to remain low for years.
- Forward Mid-Columbia Energy Market prices are lower and can be expected to remain low for the long-term.
Much Lower Expectations for Future Natural Gas Prices

Dollars per Million BTUs


$1.63 $2.22 $2.34 $2.55 $2.68 $2.79 $2.91 $3.56

As of May 22, 2015
As of February 28, 2016
Much Lower Expectations for Peak Period Mid-Columbia Hub Energy Market Prices

Dollars per Megawatt Hour

- Orange line: As of May 20, 2014
  - 2016: $18.07
  - 2017: $29.67
  - 2018: $39.62
  - 2019: $51.50
- Red line: As of May 22, 2015
  - 2016: $18.07
  - 2017: $29.67
  - 2018: $39.62
  - 2019: $42.94
- Blue line: As of February 25, 2016
  - 2016: $18.07
  - 2017: $29.67
  - 2018: $39.62
  - 2019: $31.78

Much Lower Expectations for Off-Peak Period Mid-Columbia Hub Energy Market Prices

Dollars per Megawatt Hour

- As of May 20, 2014
- As of May 22, 2015
- As of February 25, 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tr>
<td>Price</td>
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IEEFA.org
Results of February 2016 New IEEFA Analysis versus June 2015 Analysis

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<tr>
<th>Scenario</th>
<th>Dollars</th>
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<tr>
<td>June 2015 Lower Generating Cost</td>
<td>$41</td>
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<tr>
<td>June 2015 Higher Generating Cost</td>
<td>-$126</td>
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<tr>
<td>June 2015 Higher Generating Cost/Lower Market Price</td>
<td>-$235</td>
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<tr>
<td>February 2016 Higher Generating Cost/Lower Market Price</td>
<td>-$362</td>
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</tbody>
</table>
Talen’s Pre-Tax Losses - February 2016 Lower Generating Cost/Higher Market Price Case

Millions of Nominal Dollars


-15 -8 -19 -7 -21 -14 -8 -8

Annual EBITDA
Cumulative EBITDA

-126
Talen’s Pre-Tax Losses – February 2016 Higher Generating Cost/Lower Market Price Case

<table>
<thead>
<tr>
<th>Year</th>
<th>Loss (in Millions of Nominal Dollars)</th>
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<tbody>
<tr>
<td>2016</td>
<td>-$25</td>
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<td>2017</td>
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<td>-$42</td>
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<td>2024</td>
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Cumulative EBITDA: -$362

Annual EBITDA:

2016: -$25
2017: -$19
2018: -$53
2019: -$47
2020: -$38
2021: -$52
2022: -$44
2023: -$42
2024: -$41
Cost of Power for PSE’s Ratepayers – IEEFA February 2016 - Higher Generating Cost/Lower Market Price Case

Dollars per Megawatt Hour

- Higher Colstrip 1&2 Generating Costs
- Mid-Columbia Forward Prices as of February 22, 2016
Cost of Power for PSE’s Ratepayers – IEEFA February 2016 Analysis - Lower Generating Cost/Higher Market Price Case

Dollars per Megawatt Hour

- Lower Colstrip 1&2 Generating Costs
- Forward Prices in 2016-2017, 7th Power Plan "Medium" Prices 2018-2024
IEEFA February 2016 Analysis Significantly Understates the Relative Cost of Colstrip 1 & 2 to PSE Ratepayers

• Doesn’t include any Capex – When it evaluated purchasing Talen’s share of Colstrip Northwestern Energy assumed that the capex for Colstrip 1&2 would be between $118 million and $129 million during the years 2016-2024.

• Doesn’t reflect the higher cost of transmitting power from eastern Montana to western Washington State.

• Doesn’t include any CO₂ prices.
The Value of Talen’s Share of Colstrip 3

• Preliminary IEEFA analysis shows that Talen’s share of Colstrip 3 has little to negative valuation over the next twenty years.

• This analysis is conservative because it does not:
  • Include any transmission costs.
  • Reflect any CO₂ prices.
  • Include any income, gross revenue or property taxes.
  • Reflect the rate basing of any acquisition costs.
Recommendations

• Bring all stakeholders together to prepare for a just transition to life after Colstrip 1&2.

• Require Puget Sound Energy to analyze lower cost alternatives to the continued operation of Colstrip 3.

• Require Puget Sound Energy to demonstrate the economic viability of its continued ownership of Colstrip 4.