Examining the Effect of Secondary Markets for Pipeline Capacity on Natural Gas Spot Price Basis Differentials

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29 July, 2011
Motivation

- Natural Gas public policy since late 1970s: deregulation
- implicit assumption: arbitrage $\rightarrow$ desirable outcomes
  - rationalization of spot prices at various trading hubs
- but what happens with frictions?
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Case Study: Wyoming NG trading hubs

- analyzing spot price differences on National level unwieldy
- alternative: focus on case with fewer moving parts
  - compare spot prices at two major trading hubs in Wyoming
  - geographically close
  - small number of pipelines linking system
  - pipeline capacity expansion readily identified

<table>
<thead>
<tr>
<th>Trading Hub</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wamsutter</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Jonah Field</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Pinedale</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Opal</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Greater Green River Basin</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Goshen</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Clay Basin</td>
<td>Wyoming</td>
</tr>
<tr>
<td>White River</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Cheyenne</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Powder River Basin</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Wind River Basin</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Big Horn Basin</td>
<td>Wyoming</td>
</tr>
<tr>
<td>Piceance Basin</td>
<td>Wyoming</td>
</tr>
</tbody>
</table>

† Overthrust Belt

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![Diagram showing Wyoming NG trading hubs and related basins and fields.]

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WY spot price diffs and capacity utilization

[Graph showing spot price differentials over time]

- implication for resource allocation?
- why don't pipelines expand sooner, more frequently?
- what role does regulation of pipeline tariffs play?
as capacity constraints start to bind, spot prices diverge

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