Wyoming: The Pivot-Point In The Natural Gas Market

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Since 2006, radical changes in natural gas markets have disproportionately affected Wyoming production.

- Historically transportation-constrained by inadequate pipeline take-away capacity.
- Market conditions changed radically with construction of Ruby and Rockies Express.
- Followed by new sources of competing gas supplies.

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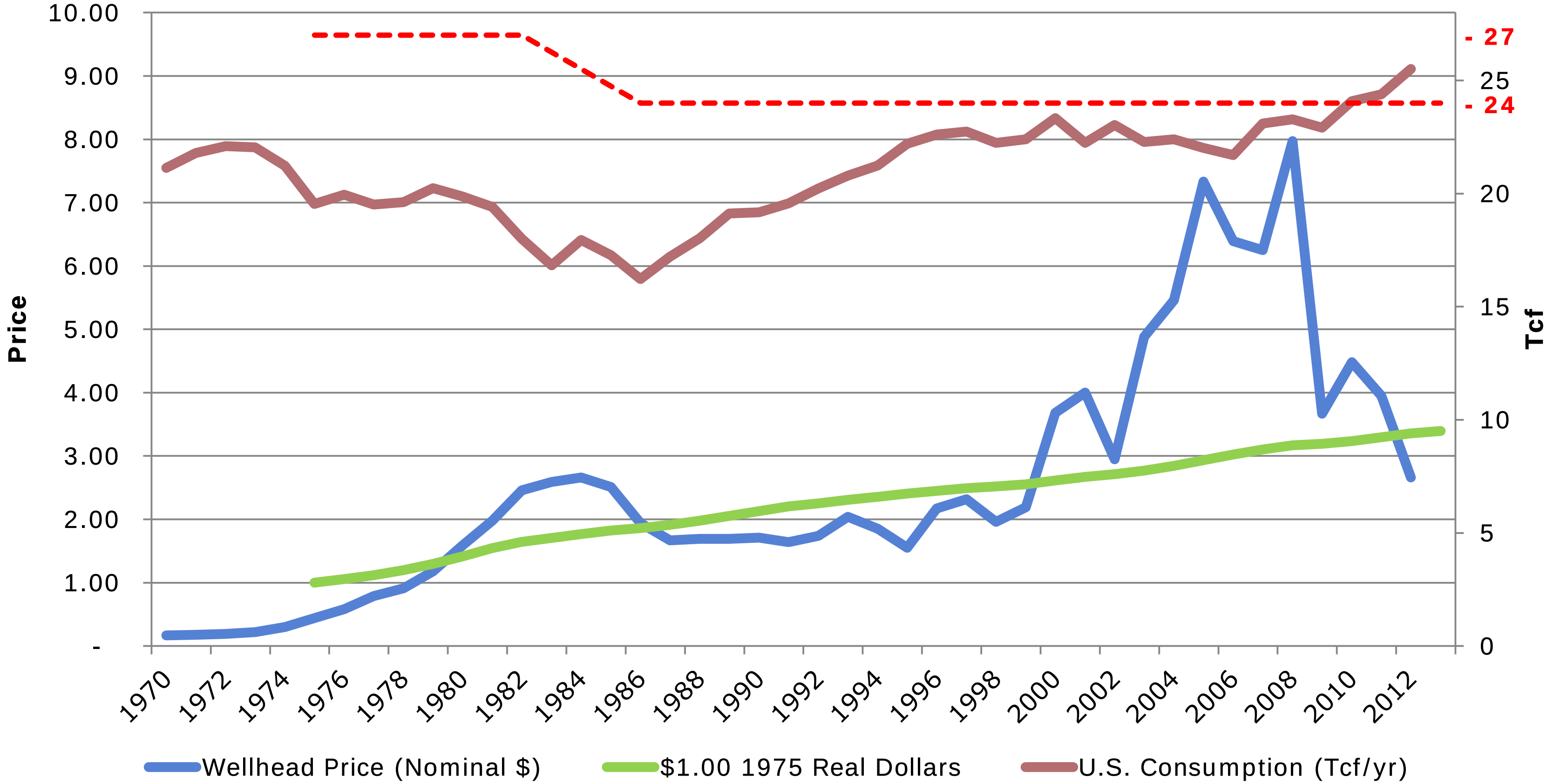

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What that chart graphically demonstrated was the effect of inadequate demand on gas prices.

Wyoming's experience during the initial downturn in gas prices was not unique.

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Integration

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The effect of new pipeline take-away capacity had been to fully integrate Wyoming production into the "national" natural gas market.

- Rockies Express
- Ruby Pipeline

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Integration – Demand

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Recent improvements in natural gas wellhead prices nationally are a direct product of significant gains in natural gas demand, not reductions in production.

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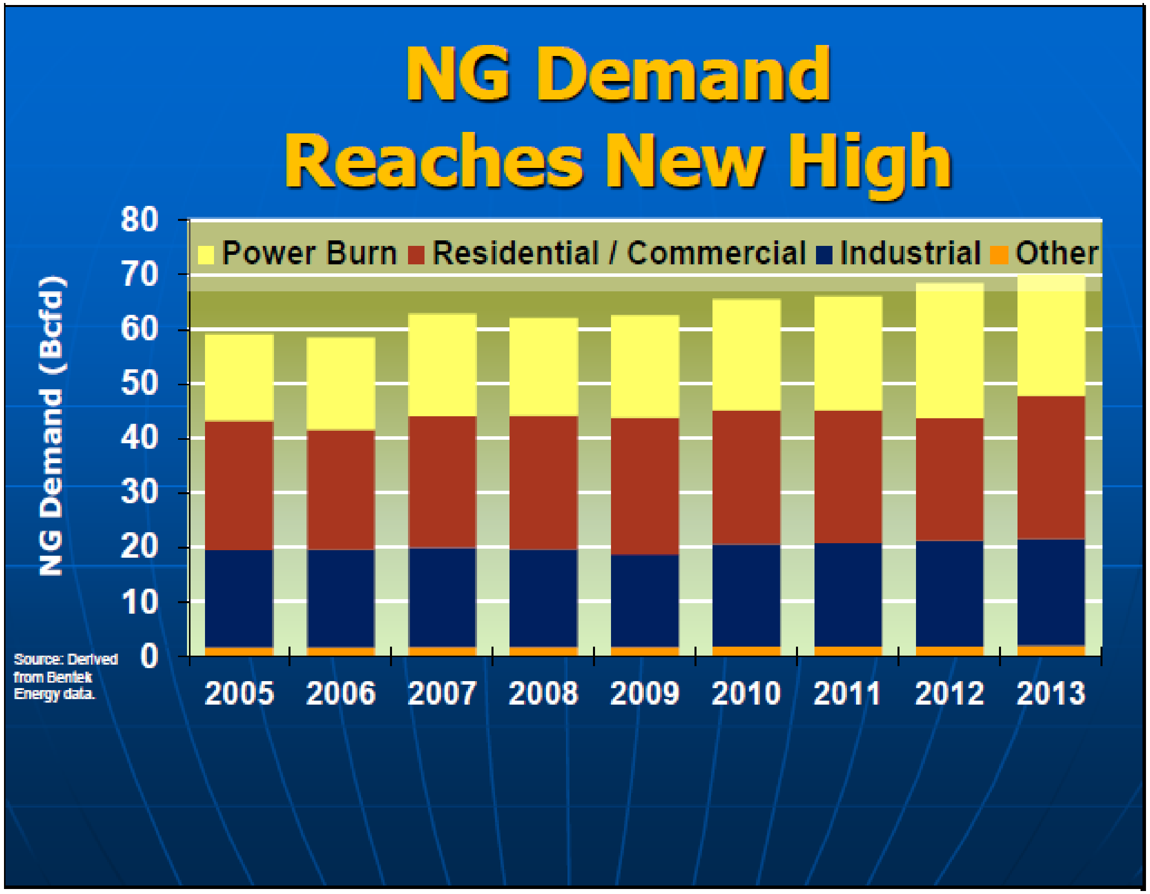

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Overall demand increased 2.3% in 2013.

- Residential (temperature sensitive) and Industrial (long-term price sensitive) demand grew.
- Even as demand for electric power generation fell due to reduced competitiveness with coal.

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U.S. LNG export markets:

- Often mistakenly viewed as a panacea for weak natural gas demand.
- Unlikely to move the price needle as long as deliverability surplus remains.

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U.S. LNG export markets:

- Problem for Wyoming producers – *most* LNG exports geographically remote from Wyoming production.
- Any price effects likely to be dissipated before reaching Wyoming.

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Integration – Supply

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"Integration" also exposed Wyoming natural gas production to new sources of competition.

- Some with significant transportation-cost related advantages due to proximity to large natural gas demand centers.
- Particularly true in Northeast.

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- Production from Marcellus Shale rose 44% to 12 Bcf/d in 2013.
- Eagle Ford production rose 36% to average 4.5 Bcf/d in 2013.
- These increases had a continuing profound effect on gas flows nationally.

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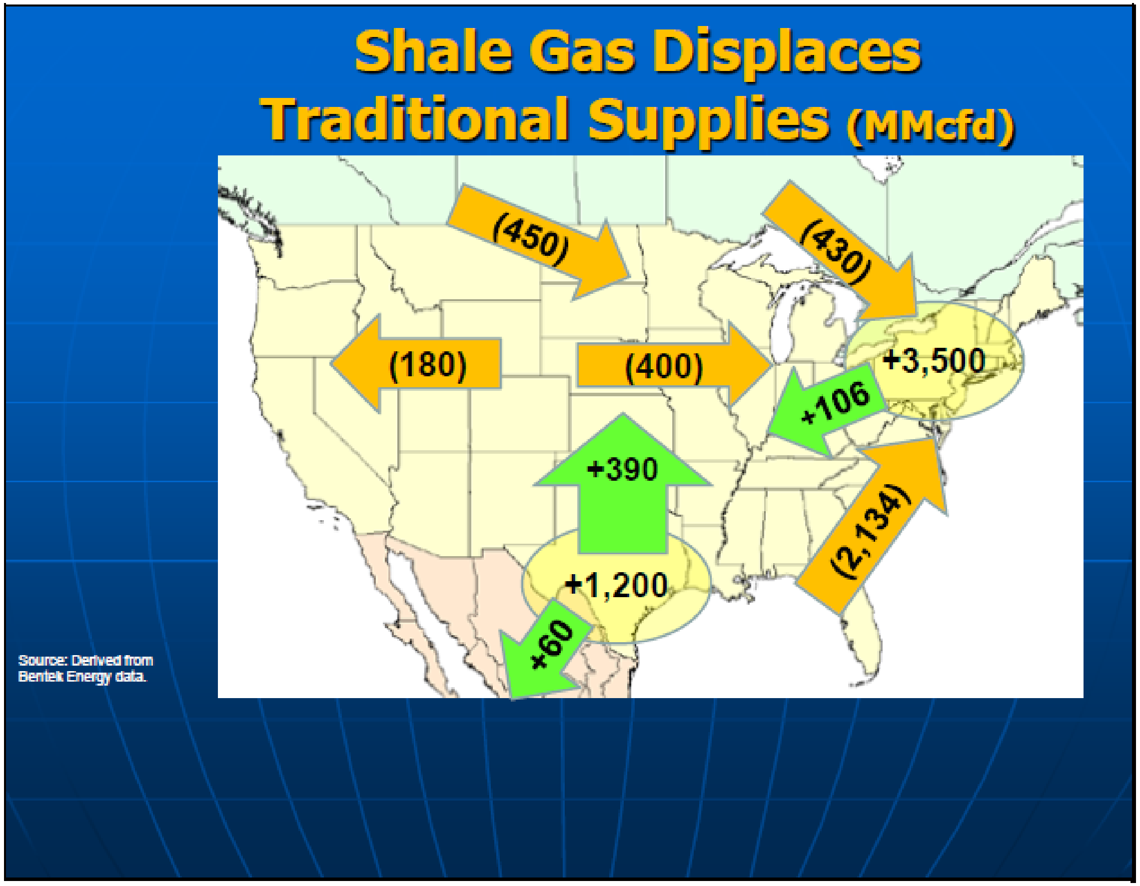

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Integration – Price Effects

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Basis differentials, which once penalized Wyoming production by up to several $/MMBtu, evaporated.

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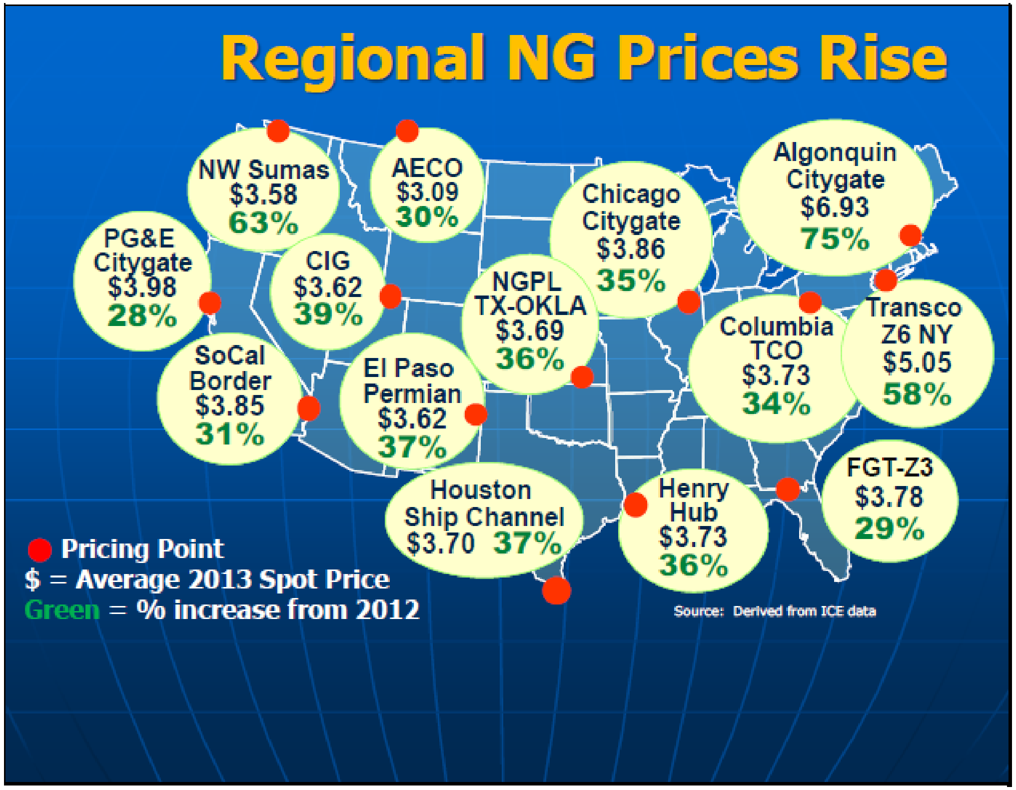

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Rockies Express

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Rockies Express Pipeline:

- 1.8 Bcf of West-to-East capacity
- Actual flows –

2011	2012	2013
836 MMDth	642 MMDth/d	590 MMDth

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Rockies Express Pipeline:

- Marcellus and Utica production exceeds "local" and East-coast market demand.
- Reconfiguring system to flow gas East-to-West to delivery points in Mid-Continent.
- Marcellus and Utica Shale production have effectively "stolen" potential Wyoming gas markets.

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Rockies Express Pipeline:

- Every Mcf of Marcellus & Utica shale gas flowing west on Rockies Express
  - is an Mcf of Wyoming gas that doesn't flow east to mid-continent markets.
- Wyoming gas is disadvantaged by burden of higher transportation costs.

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Rockies Express Pipeline:

- Huge underutilized capacity
- Effectively mechanism for balancing the national natural gas market between –
  - West-Coast (served by Ruby/Kern/El Paso & TW); and
  - Mid-continent & East Coast markets supplied by expanding pipeline network.

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Consequences of Integration

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Rockies Express Pipeline:

- Bi-directional flow moves competitive impact of Marcellus and Utica Shale production closer to Rocky Mt. Basin.
- Future “Null point” on Rockies Express:
  - Somewhere in mid-west
  - Move ↔ with seasonal demand.

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WYOMING:

- Strategically located –
  - between Rockies Express serving mid-continent;

    and

  - Kern/Ruby, serving West Coast/Calif.
- Wyoming becomes the pivot point in the national natural gas market place.

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Wyoming as "pivot point":

- **Is not necessarily a good thing!**
- Greater volatility in production levels.
- Greater seasonality in sales volumes than national average.

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Wyoming as “pivot point”:

- Wyoming producers forced to become “price takers.”
- Unpredictability in gas revenues.

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Potential Game Changer

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Recall the critical significance of “demand.”

Limited opportunities to increase indigenous demand.

- Limited population.
- Geographically remote from industrial markets.
- Land-locked.

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U.S. LNG export markets:

- Two LNG export projects of potential interest to Wyoming producers:
  - Jordan Cove and
  - Oregon LNG.
- Both in Oregon.

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Oregon LNG export projects:

- Wyoming has **natural geographic advantages** over other production areas.
- Not disadvantaged by higher transportation costs as for other U.S. LNG export projects.

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Oregon LNG export projects:

- Demand-effect on price less dissipated by distance.
- Mitigate seasonal consequence of being “swing” supply.
- Potential to improve predictability of revenue stream.

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Future Prospects?