

Natural Gas Infrastructure, The Importance, the Economics, and Some of the Challenges

Presented to: Colorado's New Energy Economy:
The Path Forward

Rick Smead, Navigant Consulting Inc.

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Navigant Consulting, Inc.
909 Fannin, Suite 1900
Houston, TX 77010

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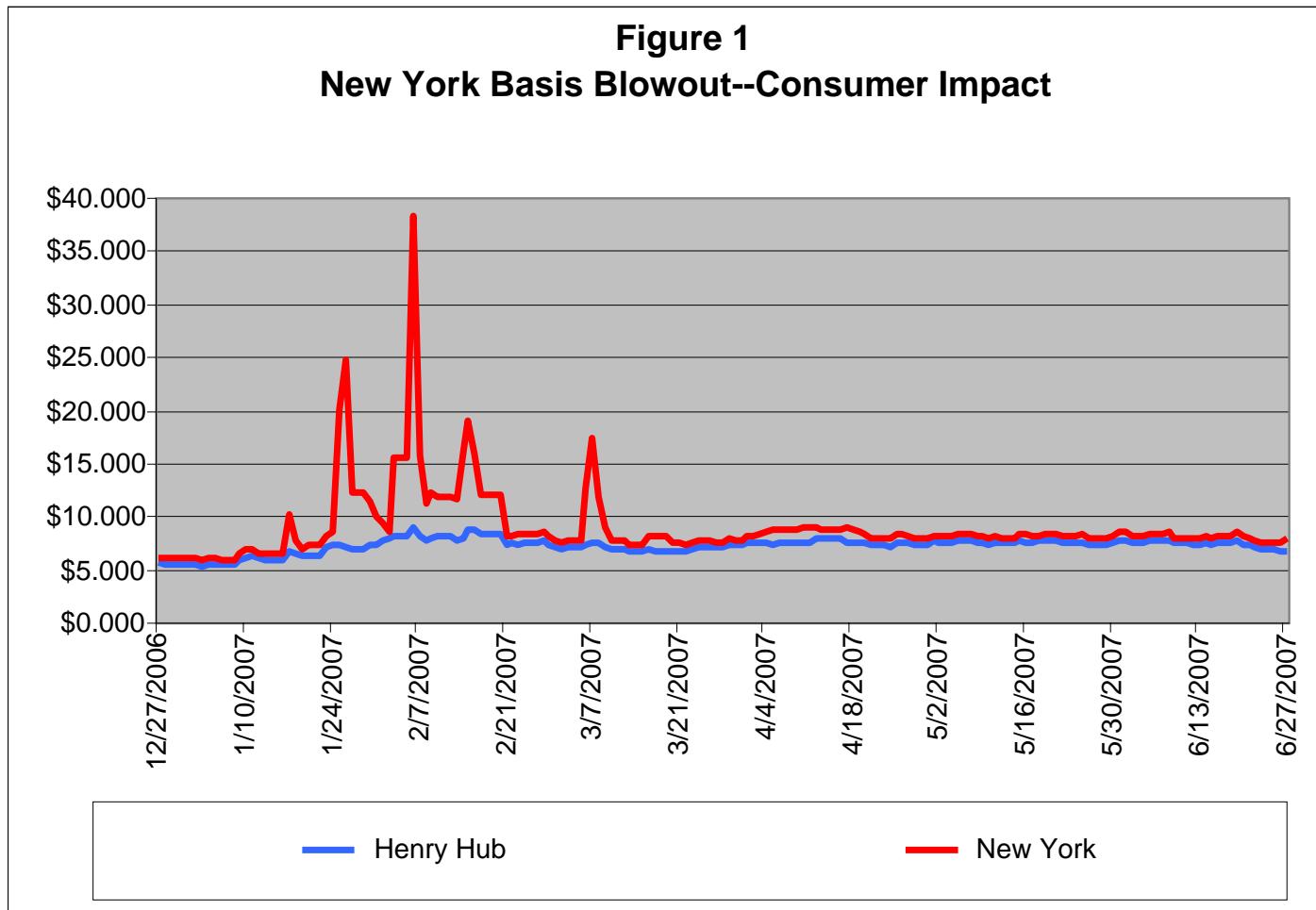
The Economics of Pipeline Infrastructure

No aspect of gas pipeline economics is as important as the simple adequacy of the pipes to link supplies to markets

- When capacity falls short, one of two things happens:
 - Consumers must compete with each other to buy scarce supplies at the delivery end
 - Or producers must compete with each other to get into the pipe
- In either case, normal supply and demand creates “basis blowout,” an explosive growth in the price difference between supply and consumption.
- If the basis blowout happens where consumers have limited choices, it is consumer prices that explode (New York this year).
- If the basis blowout happens where consumers have plenty of choices, but producers don’t, it is producer prices that collapse (the Rockies this year).
- In both instances, it’s ultimately consumers who are hurt:
 - A New York-style blowout does it directly
 - A Rockies-style collapse damps drilling activity, causing long-term shortages and thus long-term upward pressure on prices.

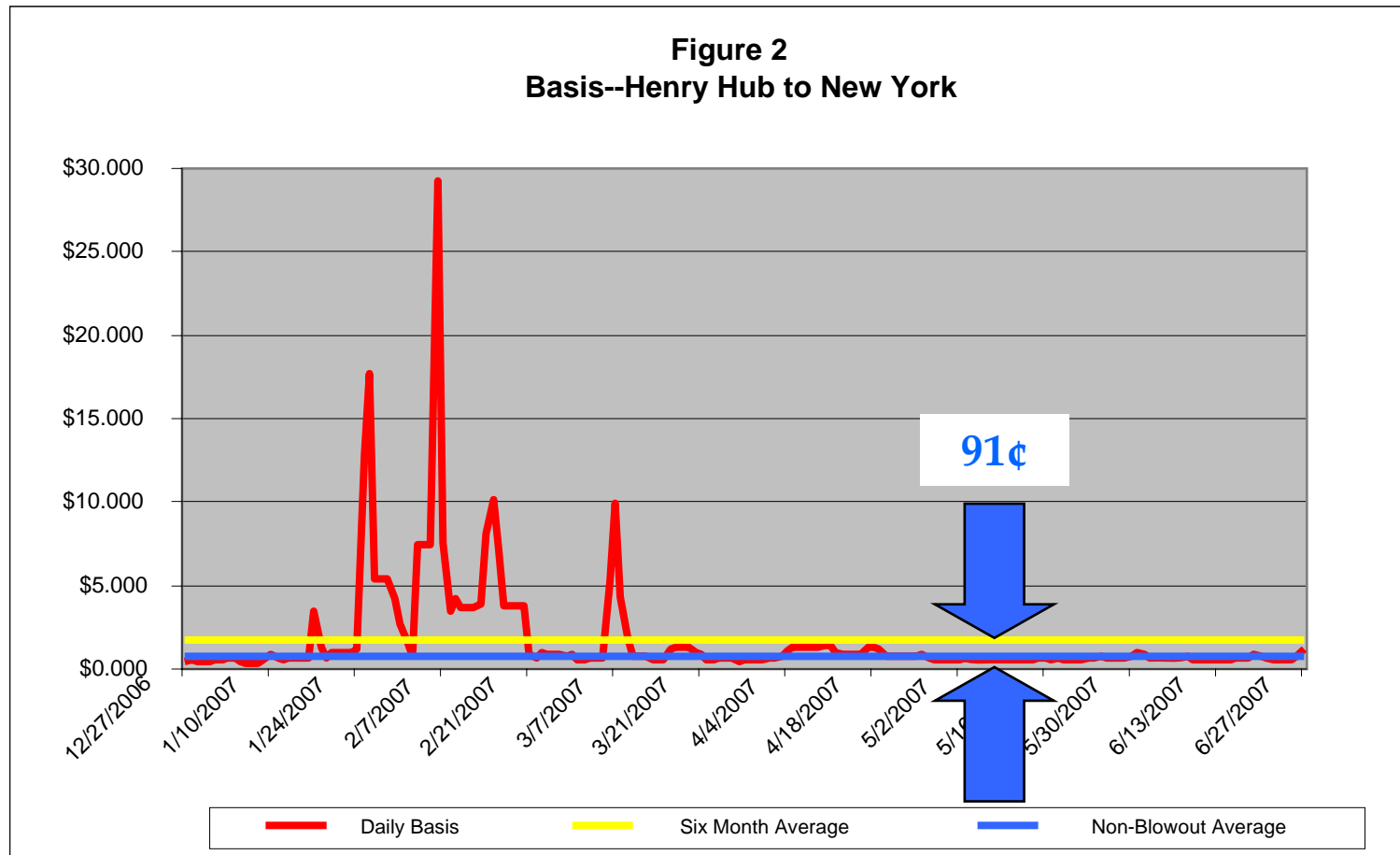
New York this year

New York prices got up above \$35, at a time when Henry Hub was at about \$7 to \$8.



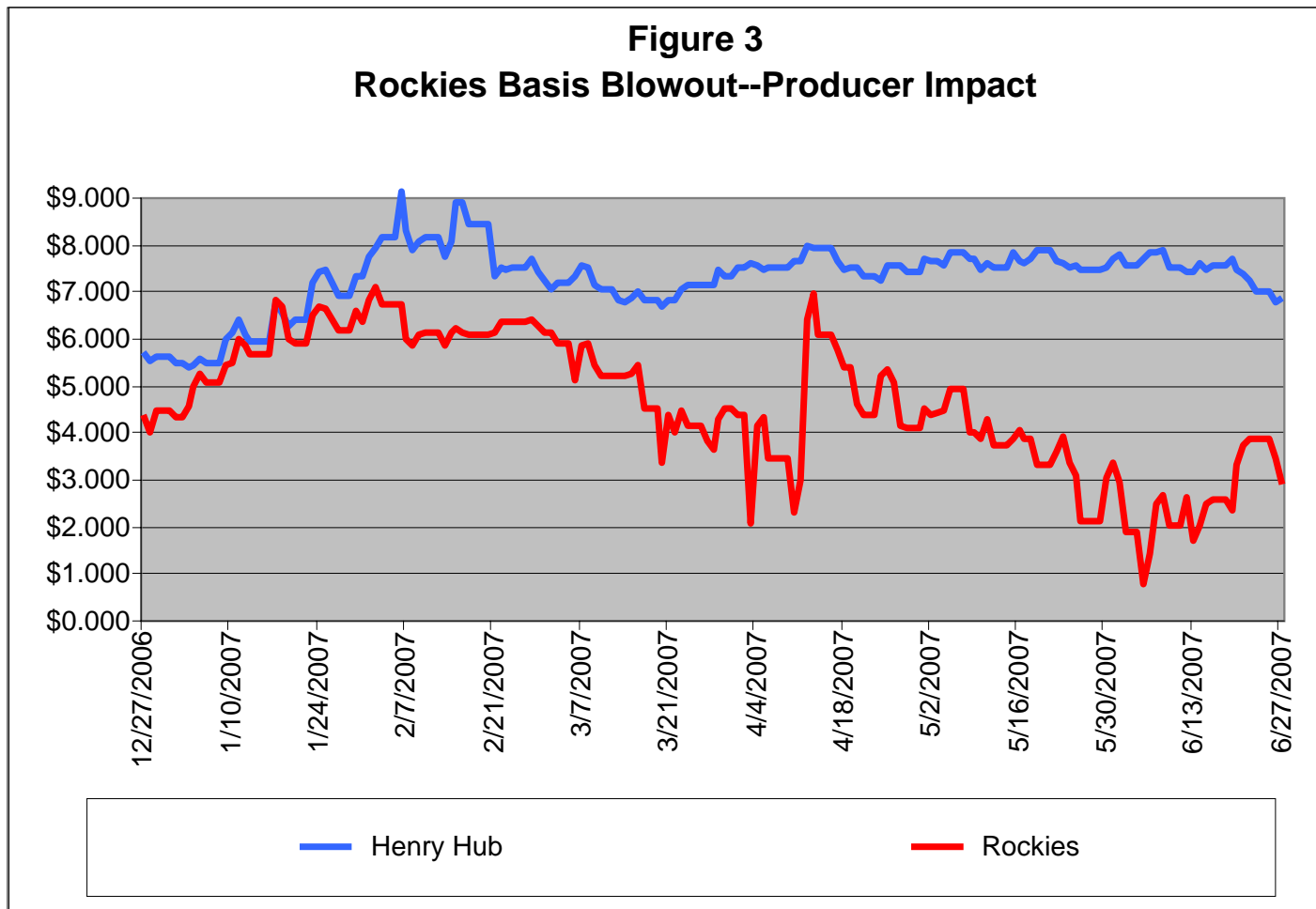
New York this year--continued

The Henry-to-New York basis blew up to around \$30, when transport costs about 70 cents. The blue line at the bottom represents stable prices about equal to the transport cost.



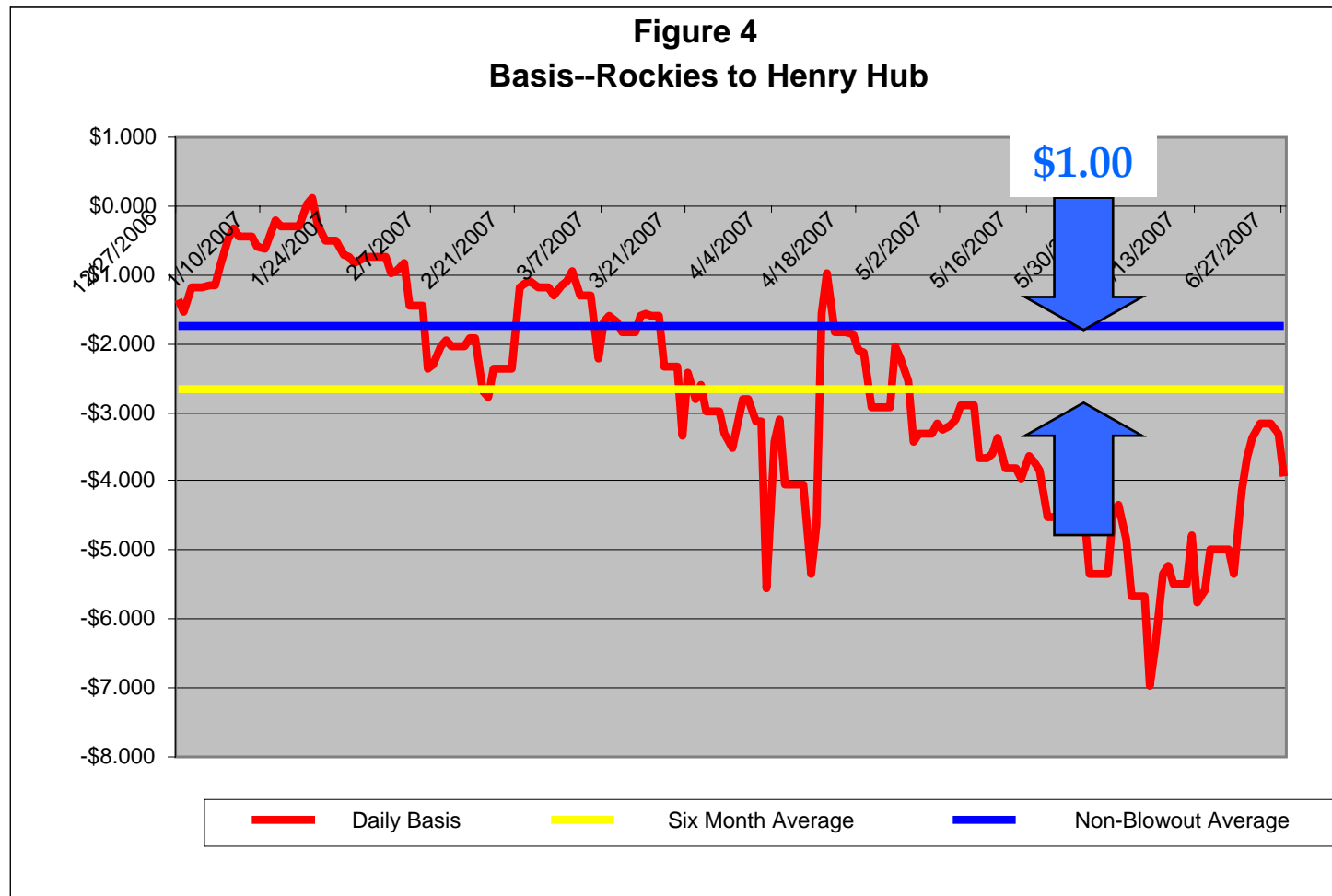
And then we have the Rockies

The Rockies disconnected from Henry sometime in January, and went through the collapse John Harpole addresses so eloquently.



And then we have the Rockies--continued

First, fixing the blowout is worth at least \$1.00 on average. Then, the blue line says it ought to be worth a little under \$2.00 to get into Henry Hub pricing areas—That's why Rockies Express makes sense.



So we need more pipeline capacity

By creating a better ability for gas to get to New York and for gas to get out of the Rockies, these things won't happen as often.

- The rough value of doing so is the difference between the yellow line and the blue line in both scenarios—the average actual basis vs. the average “normal,” unconstrained basis.
- That's about a buck—In other words, over the course of the year, it ought to be worth \$1.00 per Dth for everyone—for both ends of the system—to add new capacity.

- But aren't pipelines “over-earning”? Why not just reduce their rates to make the buck?
 - The answer: The “over-earning” doesn't come close to the same order of magnitude.
 - Meanwhile, if spending a lot of time and money to squeeze pipeline rates and earnings makes them even a little less likely to invest in new infrastructure, the consumer is the real loser.

The Economics of Pipeline Rates

What would tighter rate regulation be worth?

- A lot of parties have claimed that pipelines are over-earning, by anywhere from 2 percent return on equity on average, to 18 percent for specific companies.
- What would it be worth to “fix” it?
 - A differential of 1 percent return on equity equates roughly to 0.83 percent pre-tax rate of return.
 - The total US interstate pipeline industry rate base is about \$43 billion.
 - So the cost of service effect of the 1 percent ROE would be 0.83 percent times \$43 billion, or \$358 million.
 - Spread over the national consumption of 22 Tcf, that’s a 1.7 cent impact.
 - So 2 percent is worth 3.4 cents, 18 percent is a little over 30 cents.
- That means that if every pipeline in the United States overearned by 18 percent on equity, squeezing them all back would be worth about 30 cents per Dth.
- That compares with a buck average for capacity constraints, and \$30 from time to time as we saw in New York.

The Economics of Pipeline Rates — The bottom line

Pipe capacity is a lot more valuable than rate cases

- Consumers and producers are both well served by making sure that capacity gets built when and where it is needed.
- If this means leaving the more successful pipelines alone, the cost of potential “over-earnings” is a lot less than the benefit of avoiding capacity-driven basis blowout— consumers and producers are the net winners.

Conclusion

Infrastructure, Infrastructure, Infrastructure

- Get the right amount of capacity in place, and price basis differentials settle out at about the cost of transport.
- Don't do that, and those differentials explode, either sending consumer prices through the roof (with no benefit to producers) or sending producer prices to the cellar (with no benefit to consumers).
- The INGAA Foundation says the pipeline industry will need about \$60 billion of new plant by 2020. It will be competing for money with the power industry, which says it needs something like \$900 billion.
- So it will be a challenge, but it can be met by focusing on the value of relieving capacity constraints.