

Natural Gas Price Forecast Methodology Review: Follow-up

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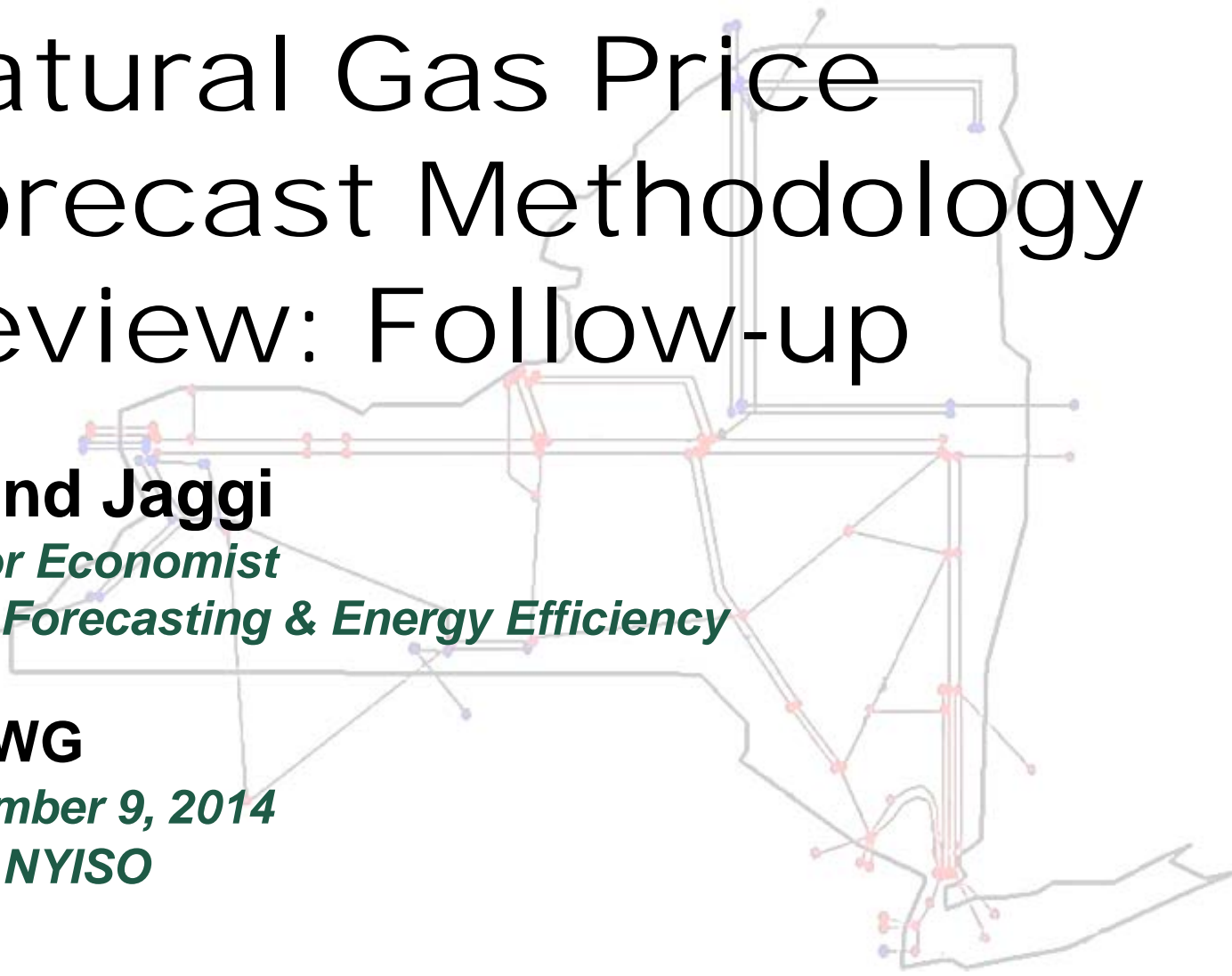
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ESPWG

December 9, 2014

KCC, NYISO



Background

- ◆ NYISO presented a proposal to reform Gas Price Forecast methodology at 11/12/14 ESPWG.
- ◆ Reform is proposed to improve forecasted basis calculations to better align forecasts with recent market trends.
- ◆ NYISO received some comments that forecasted winter (especially, January) prices were not high enough.
- ◆ NYISO suggested a review of the number of years used to estimating monthly seasonal factors (detailed in ESPWG 3/12/13).
 - *Currently, monthly factors are based on 5-year averages*
 - *Suggestion was to consider assessing 3-year averages*

Comparison of Seasonality Methods

Example: January Factor for Downstate price forecast

Year	Jan. avg. of daily prices (A)	9-month Avg.* (B)	Jan. Factor (A/B)
2009	9.28	4.34	2.14
2010	8.32	4.92	1.69
2011	9.26	4.75	1.95
2012	4.29	2.93	1.47
2013	9.97	4.01	2.48

No significant difference between using a 5-year average vs. a 3-year average for all 12 months.

Raw** Monthly Factor

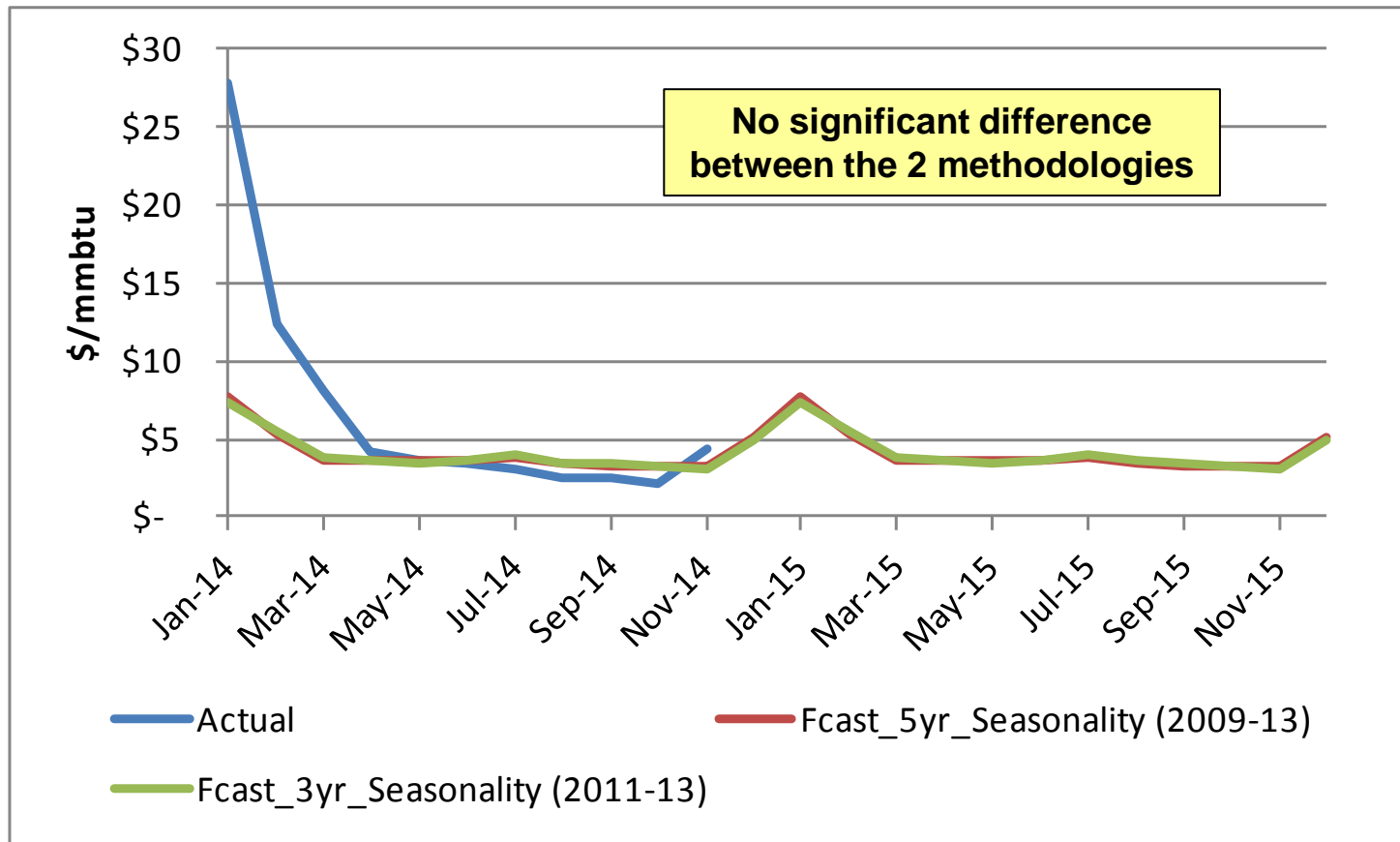
5-year average (2009-13) = 1.95

3-year average (2011-13) = 1.97

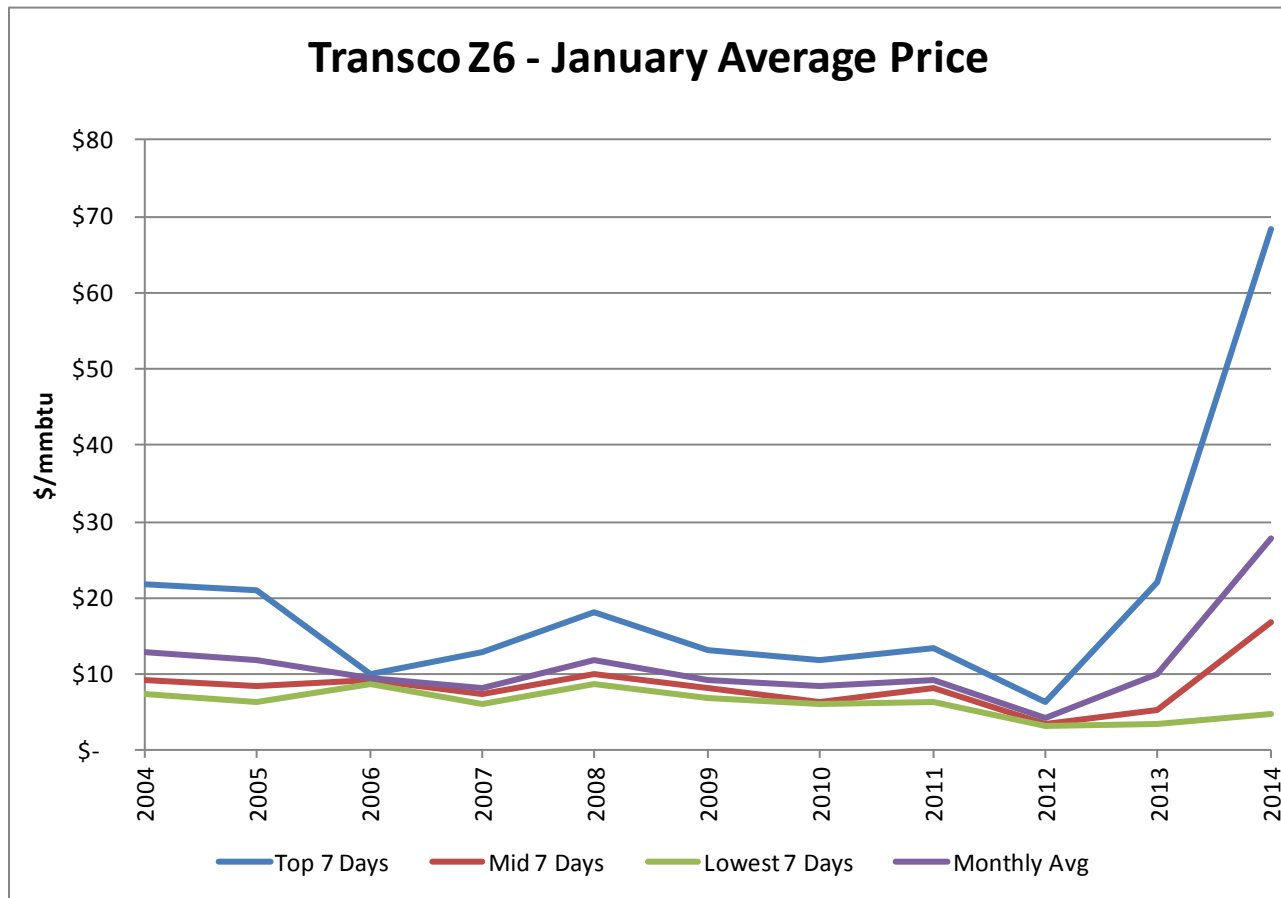
* Under the newly proposed methodology, the 9-month average (Mar. – Nov.) shall be used as a proxy for annual average.

** The 12 “raw” monthly factors are normalized to yield the final seasonal factors used for the forecast.

Comparison of Seasonality Methods



Volatility of Daily Prices: Transco Z6



The last 2 years have seen a sharp rise in intra-month volatility.

Proposed Gas Price Forecast Methodology

- ◆ NYISO's 10-year gas-price forecast relies on a statistical methodology in which historical patterns are fundamental.
- ◆ If winter gas-prices continue to exhibit higher levels (as compared to the recent past) for the next few years, the proposed forecast methodology will reflect that.
- ◆ Currently, NYISO forecast attempts to capture the intra-month volatility observed during winter months via weekly spikes.

Weekly Spikes Augment Forecast

- ◆ Since CARIS uses weekly prices for its analysis, monthly forecasted prices are interpolated to yield 52 weekly prices for a given year.
- ◆ NYISO applies ‘weekly spikes’ to interpolated forecasted weekly prices to capture typical intra-month volatility.
- ◆ These spikes are estimated based on 5-year historical analysis. E.g., for Zones J & K, there are 4 winter weekly spikes: Two in Jan. (30% each), one in Feb. (15%), and one in Dec. (25%).

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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