

Midwest ISO and PJM Real Time

Proxy Bus Price Analysis

**Joint Stakeholder Meeting
June 1, 2007**





PJM and MISO Real Time Price Analysis

- Real Time 5-Minute Price Analysis
- Conclusions

Real Time 5-Minute Price Analysis



- Data for the Analysis

Real time 5-Minute LMPs of PJM and Midwest ISO proxy buses

- Study Period

From 01/01/2006 to 07/23/2006



Statistics of Real Time 5-Minute LMPs of PJM and Midwest ISO

Min (LMP_MISO- LMP_PJM)	Max (LMP_MISO- LMP_PJM)	Average (LMP_MISO)	Average (LMP_PJM)
-527.85	429.26	41.66	42.60



Statistics of Real Time 5-Minute LMPs of PJM and Midwest ISO

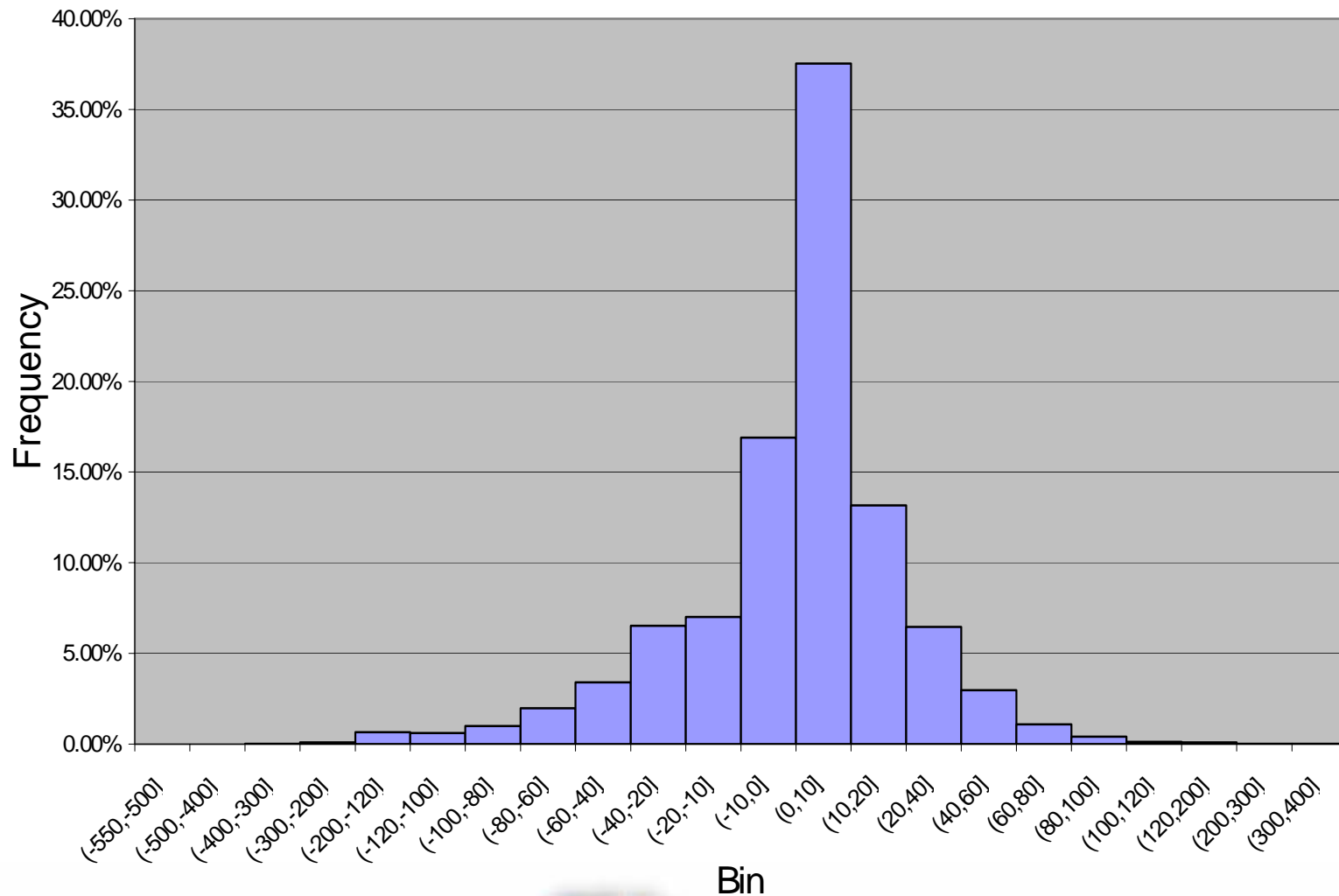
	MEAN	STDEV
LMP_MISO	41.66	24.00
LMP_PJM	42.60	31.06
(LMP_MISO-LMP_PJM)	-0.94	30.29

Statistics of Sign Change of 5-Minute Price Difference (LMP_MISO-LMP_PJM)

	(LMP_MISO- LMP_PJM) >0	(LMP_MISO- LMP_PJM) <0
Min(5 Min.)	1	1
Max(5 Min.)	131	58
Mean(5 Min.)	5.88	3.61
STDEV(5 Min.)	8.25	4.25

5-Minute Price Difference (Frequency in Percentage)

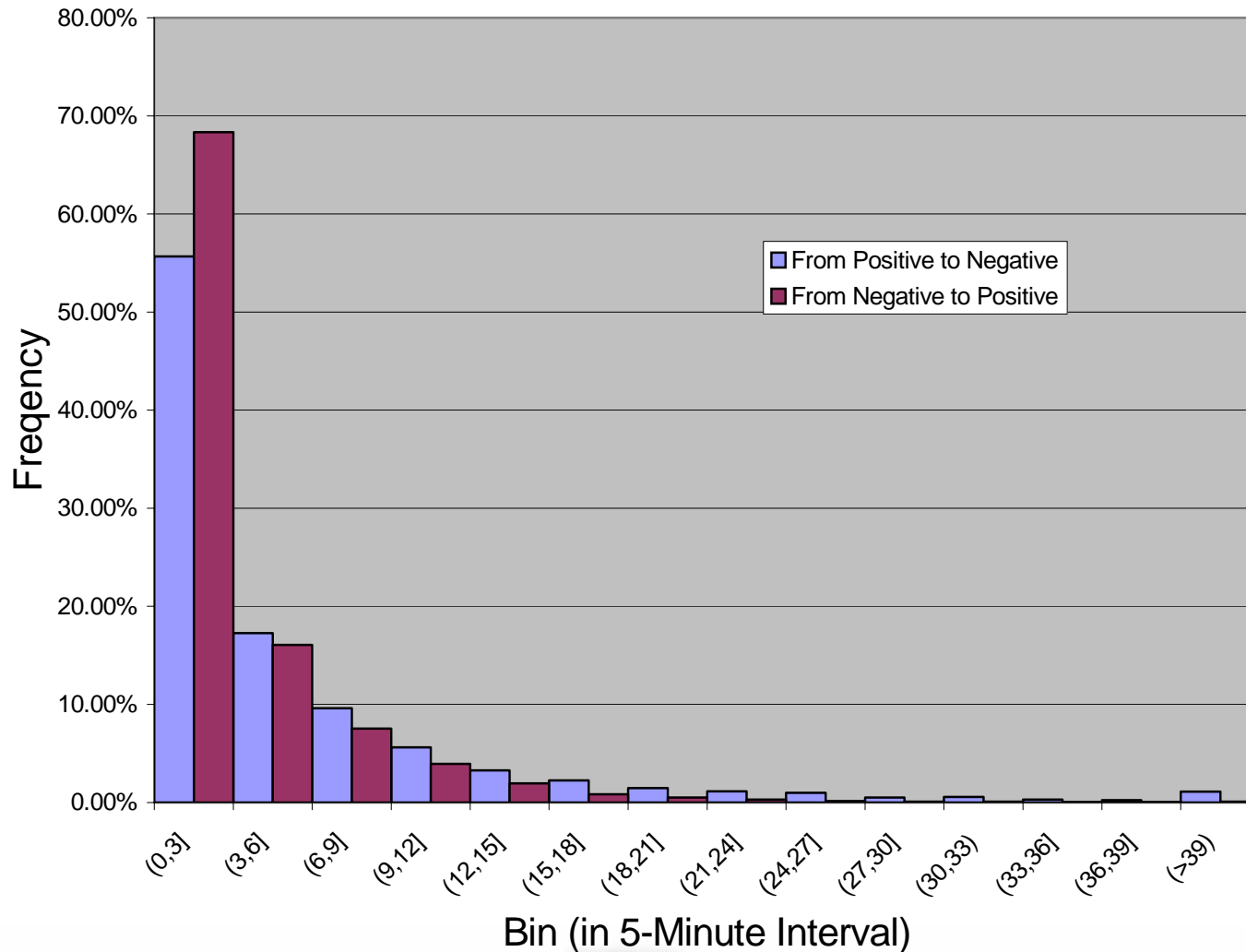
5-Minute Price Difference (LMP_MISO-LMP_PJM)



Sign Change of 5-Minute Price Difference

(Frequency in Percentage)

Sign Change of 5-Minute Price Difference (LMP_MISO-LMP_PJM)



Conclusions

- The average of the difference in price at PJM and MISO proxy buses is small.
 - Prices fluctuate but average out over time.
- The markets are able to respond to price differences relatively quickly.
 - Mean time to change sign in difference between 5-minute LMPs at the proxy buses is less than ½ hour.
- Proxy buses perform adequately.
 - Changing focus to investigate ways that improve the ability of participants to optimize trades between markets in response to prices.

Conclusions



- Analyzing prices at individual buses along border.
 - Meaningful results from this analysis won't be available until PJM incorporates marginal losses in prices.
- No further action to modify proxy bus definitions planned. The Alternative Border Pricing Point Calculation initiative will be moved from “requires further analysis” to “no further action required.”