

November 1, 2013

Drinker Biddle & Reath LLP
attn: William M. McSwain or Tara S. Sarosiek

Re: PJM Up-To Congestion Transactions, Docket No. IN10-5-000 (Federal Energy
Regulatory Commission Investigation)

CONSULTING REPORT OF JEFFREY H. HARRIS, Ph.D.

1. I, Jeffrey H. Harris, hold the Gary Cohn Goldman Sachs Endowed Chair in Finance at the Kogod School of Business at American University. I have taught at a number of other universities. From 2007 to 2010, I served as Chief Economist at the U.S. Commodity Futures Trading Commission (CFTC) in Washington, DC. As the CFTC Chief Economist, I directed the economic analysis to support the Division of Enforcement in a wide variety of cases. I was in charge of directing economic research studies and providing economic guidance to the Commission. In this capacity, I recruited, hired and directed a team of economists who interfaced with market surveillance and enforcement staff regarding economic issues. I coordinated efforts with Enforcement attorneys regarding the potential for market abuses and directed staff to apply economic analysis to support Enforcement cases efficiently and effectively. Through this work and my own research, I have become intimately familiar with the interface between the law and economics.

2. My primary teaching responsibilities have spanned the areas of investments, derivative securities (options and futures), financial markets and institutions, and corporate finance. I received my Ph.D. in Business Administration (Finance) from the Ohio State University in 1995, a Masters of Business Administration from the University of Iowa in 1987 and a B.A. degree in Physics from the University of Iowa in 1986.

3. I have also served a one-year term as Visiting Academic Fellow at the NASDAQ Stock Market and a one-year term as a Visiting Academic Scholar in the Office of Economic Analysis at the United States Securities and Exchange Commission (SEC) in Washington, DC. My academic work has been in the field of market microstructure, studying how trading behavior, market regulations and market structure interact. I have published numerous articles in refereed finance journals, including *The Energy Journal*, the *Journal of Finance*, the *Journal of Financial Economics*, the *Journal of Futures Markets*, the *Journal of Investment Management*, and the *Review of Financial Studies*. My publication record includes a variety of papers related to both the trading environment of and trading rules governing commodity markets. In addition, I have served as a referee for a wide range of academic journals.

4. I have testified on four separate occasions to various Committees and Subcommittees of the United States Congress, including “The Role of Speculative Investments in Energy Markets” before the United States Senate Subcommittee on Energy and Natural Resources on September 16, 2008; “Financial Speculation in Commodity Markets: Are Institutional Investors and Hedge Funds Contributing to Food and Energy Price Inflation?” before the United States Senate

Committee on Homeland Security and Governmental Affairs on May 20, 2008; “The Influence of Speculative Traders in Commodity Markets” before the United States House of Representatives Agriculture Committee on May 15, 2008; and “The Influence of Non-commercial Institutional Investors on Oil Prices” before the United States Senate Committee on Energy and Natural Resources on April 3, 2008.

5. I have been retained by Powhatan Energy Fund LLC (“Powhatan”) and Drinker Biddle & Reath LLP to assist in the above-referenced matter by providing consulting services on market manipulation, the Up-to Congestion Trades and any related issues that arise during the course of the Engagement. At this point, Powhatan and I have agreed that any reports or work product I produce for this Engagement will be policy oriented and not necessarily intended to be presented as testimony. For this Consulting Report, I have relied on the information contained in the documents listed in the Reference section in Appendix A below. Accordingly, if additional materials or any new facts are brought to my attention, I reserve the right to modify or update my opinions.

I. Overview

6. Having reviewed the issues in the Federal Energy Regulatory Commission (FERC) Investigation, it is my opinion that the preliminary conclusions reached by FERC's Office of Enforcement staff are misguided and without merit. In particular, I believe the preliminary conclusions related to risk, manipulation, scienter, and parallel arguments based on the *Amanat* case do not stand up to informed judgment. I address each of these below.

II. FERC Fails to Consider the Real Economic Risks to the Trading Strategies Examined in This Case

7. The Defendants (Dr. Houlian Chen and Principals of the Huntrise Energy Fund, LLC and Powhatan) engaged in scheduling of Up-to Congestion (UTC) transactions in the PJM Interconnection from February 2010 through August 3, 2010. These trades were in part designed to share in a portion of the Marginal Loss Surplus Allocation (MLSA) that, at the time, was shared by participants according to a non-public formula determined by PJM. While the Defendants were able to profit from their trading on average, these profits were *far from riskless* as evidenced, for example, by the losses exceeding \$176,000 on a single trade on May 30, 2010 (a day the Defendants lost over \$300,000).

8. The risks in this case stem from a number of sources, including basis risk, the risk of trades failing to clear, the risk of PJM having made erroneous calculations in sharing MLSA revenues, the risk of PJM changing the (non-public) formula for sharing MLSA revenues, the risk of unknown competitive behavior by others sharing in MLSA revenues and the risk stemming from unknown weather conditions. Despite the Defendants' attempts to minimize the sources of these risks (e.g., by avoiding "shoulder months" which experience mild weather, or by focusing on correlated pair trades up through the May 30, 2010 losses or matched pair trades thereafter), these risks prevailed throughout the period under investigation.

9. Given these facts, I do not agree with FERC's assertion (Preliminary Findings, p. 22) that Chen (one of the Defendants) "did not assume market risks." This same document recognizes the largest May 30, 2010 loss exceeded \$176,000 (and exceeded \$300,000 for the day) and points out (in footnote 9 on p. 9 and on p. 23) that in 46% of the hours for a set of correlated pair trades and 20% of matched pair trades the MLSA revenues, combined with other costs, *did not yield positive returns*.

10. The prime example of basis risk inherent in correlated pair trading occurred on May 30, 2010 when an unanticipated price divergence left the Defendants with a loss exceeding \$176,000. The Defendants' spread trades were based on fundamental research on the spread between prices at different nodes (prior to May 30, 2010) and points in time on PJM (throughout the period in question). As with most spread trades, this fundamental research is incorporated into market prices via trades which provide liquidity for other traders and make markets more efficient. Most certainly, however, these correlated pair trades were subject to the risk of the basis changing between nodes and across time.

11. The recognition of these risks appeared to be clear at the time of trading. The Defendants expressed concern prior to March 2010 that PJM would stop sharing MLSA revenues or that PJM had made incorrect calculations and would want the Defendants to pay back past revenues. In fact, this risk was real, given that the full extent of gains or losses from UTC trading would not be known for up to a week later when any estimated MLSA revenues might be disbursed.

12. The risk that PJM made erroneous calculations in sharing MLSA revenues never materialized during the period under question, but this does not make the risk any less relevant. In fact, the risk that PJM would change the (still) unknown formula for sharing MLSA revenues did materialize in September 2010, but after the date the Defendants ceased trading.

13. In my opinion, the market risk of unknown competitive behavior by others likely played a part in the variability of Defendant profits. Two aspects of this competitive behavior appear to play a role in this case--the risk that the trading volume of others would adversely move market prices and the risk that the Defendants' model of estimated MLSA revenues would be affected by the trades of other participants. Since UTC bids submitted by competitors affected the estimated MLSA revenues, competitive uncertainty clearly was a risk factor.

14. Defendant statements acknowledge that the market could bear volume only up to a point (where spread trades that move market prices could lead to unprofitable prices). Defendants' analysis and trading, contrary to being reckless, attempted to quantify and avoid market moving actions so as to maximize the probability of success.

15. Importantly, uncertain weather conditions play a role in the basis risk between nodes and across time. It appears to me that the Defendants took care in minimizing this risk by avoiding "shoulder months" where weather is typically milder. This fact reinforces my belief that the Defendants applied prudent risk management to their trades. Given the fact that local weather conditions can vary substantially, the correlated pair trades undertaken before May 30, 2010 could not completely eliminate unexpected basis changes between nodes. Likewise the daily variation in weather conditions made all pair trades risky across time, including the matched pair trades.

16. Statements from FERC's Preliminary Findings support a reasonable conclusion that these trades were risky. Apart from the massive May 30, 2010 losses, FERC notes that "over 80% of the hours" in which the Defendants employed the matched pair strategy the MLSA revenues exceeded transmission-related, market and ancillary service charges (Preliminary Findings, p. 23). Viewed objectively then, nearly 20% of the hours in which the Defendants employed this strategy, MLSA revenues apparently did not cover these charges so that the Defendants lost money. A trading strategy that loses money nearly 20% of the time is quite risky.

III. FERC Fails to Demonstrate that Market Prices Were Manipulated in this Case

17. FERC's August 18, 2010 filing states the trades in question "were undertaken with the intent of manipulating PJM market rules." In my opinion, this cannot be the case. PJM market rules were, and continue to be, determined by PJM alone and were not manipulated by the Defendants. Indeed, as described above, the Defendants undertook some effort to analyze past MLSA payouts in an effort to maximize their expected profits from the rules which PJM established. It appears to me that at no time did the Defendants actually have knowledge of the precise rules that PJM established for calculating and distributing MLSA payments, let alone manipulate these rules to their own benefit.

18. One type of manipulation involves the exercise of market power (by cornering or squeezing a market, for instance). To my reading, the Defendants had no ability to manipulate the PJM market rules since the Defendant did not participate in setting, changing or amending these rules in any sense. The fact that the Defendant may have made some profits by scientifically estimating expected profits under a set of established rules does not by itself represent any type of market power.

19. Other types of manipulation might involve "wash trades" (selling and re-purchasing the same security or substantially the same security to generate activity and to affect the security's price). To my estimation, the Defendants' pair trades cannot be considered wash trades since the pair trades were (demonstrably, as noted above) exposed to market price risks that involved potential (and actual) losses while wash trades involve no risk of loss.¹

20. The Defendants in this case appear to have taken care in minimizing, but not eliminating, market risks. FERC appears to view this risk management as evidence that no risk was taken with these pair trades. The trading results clearly show one day of significant losses (May 30, 2010) and, I believe, an extensive and significant number of individual hours where Defendant trades were unprofitable. My reading of the facts notes that a full 46% of hours involving correlated pair trades (in the analysis of two sets) and nearly 20% of hours involving matched

¹ As Richard Tabors notes (in Appendix A of Exhibit B in the Written Submission to Commission Investigation Staff on Behalf of Powhatan Energy Fund, LLC In re: PJM Up-to Congestion Transactions (Docket No. IN10-5-00) dated October 21, 2011), "a UTC transaction from Node A to Node B is *never* the equivalent of a UTC transaction from Node B to Node A" (emphasis in original). In this light congestion trades are not the same as securities purchases and sales.

pair trades (following May 30, 2010) were not profitable during the period in question. These facts clearly show that the Defendant trades were exposed to significant risks.

IV. FERC Fails to Credibly Establish Scienter in This Case

21. Scienter (the intent or knowledge of wrongdoing) in financial manipulation cases refers to whether accused either intended to deceive, manipulate or defraud or acted with recklessness when trading. In their Preliminary Findings, FERC Staff cite statements of the defendants which express concern about the continuing profitability of their trading (p.11). However, these statements do not show intent to deceive, manipulate or defraud, but rather a rational concern about risks that affect expected trading profits.

22. In their Preliminary Findings, FERC Staff also cite the fact that the Defendants scaled up their trading operations in May 2010, but these facts do not appear to me to demonstrate recklessness in the trading strategy. Indeed, Defendants' statements at the time appear to express a rational concern about the viability of the trading strategy looking forward. As noted above, the risks of this strategy involved the cessation of the MLSA refund, a possible change in the MLSA calculation, a mistake in the MLSA refunds received in the past, a possibility that trades might not clear, basis risk (which appears to have led to the massive May 30, 2010 loss), and the risk of unknown actions by other participants.

23. Further, the Defendants were diligent in undertaking trades that attempted to minimize these risks. This demonstrates to me that the trading was not reckless in any sense, but rather shows that the trading was prudent and rationally intended to minimize the risk of losses.

24. In my assessment, the Defendants made no attempt to defraud anyone. PJM established the rules regarding sharing of the MLSA. The Defendants executed risky trades in order to maximize expected profits given these rules. I understand that all trades were clearly identified to PJM and in no way did the Defendants misrepresent themselves to PJM or other market participants. In fact, MLSA revenues were shared for many months before Defendants' trades were questioned. Further, upon notice in August 2010, the Defendants ceased trading immediately as requested. To me, none of these facts even remotely suggests that the Defendants intended to defraud.

V. The Facts and Circumstances From the *In re Amanat (Amanat)* Case Differ Significantly From this Case

25. As noted in FERC's Preliminary Findings, trading in the *Amanat* case involved "sham trades" which were "designed to avoid the effects of price changes due to market forces." Careful consideration of the facts and circumstances, however, shows that the present case differs significantly from *Amanat*. First, Defendants' pair trades clearly did not (and could not) avoid the effects of price changes due to market forces and/or uncertainty in MLSA revenues as demonstrated by the fact that 46% of the hours containing correlated pair trades and almost 20% of the hours containing matched pair trades were not profitable. Further, as the May 30, 2010

results showed, these losses could also be substantial. The *Amanat* stock trades were exposed to no similar market risk.

26. Second, the trading in *Amanat* involved trading in the public markets, where the effects of the sham trades arguably led to trading volume that other traders were likely to rely upon as public information signals. The trading in the present case involved only pair trades in the UTC market which, to my knowledge, FERC has not connected to the detriment of other traders other than asserting that these trades "implicitly signaled" that the trades were made to "profit from market price movements" (FERC Preliminary Findings, p.21). As spread trades, the profitability of trades in question here clearly depended on spread changes. The variation in profitability from hour to hour depended in part on uncertain spread changes and in part on uncertain MLSA revenues.

27. Third, the *Amanat* case involves trading in Nasdaq securities where the formula and thresholds for sharing in data revenues are clearly public knowledge. Importantly, no public knowledge or formula for determining MLSA payments exists in this case. In fact, the Defendants were surprised by the windfall payments that were made under the MLSA payments in 2009 and only used the history of payments in an attempt to estimate the non-public PJM calculations for MLSA revenue sharing in this case. As noted above, the continued use of this non-public formula and the potential for unexpected revisions to the formula for current or future UTC trades made Defendants' trades risky (and might well have erased past or current week profits). No similar risks apply to the *Amanat* case, highlighting another difference between the riskless "sham trades" in the *Amanat* case and the risky pair trades in the present case.

28. A fourth difference between the cases involves the mechanism by which the trades were executed. In the *Amanat* case, actual offsetting trades were executed immediately within milliseconds. In the current case, the Defendants entered bids that were not executed immediately. *Amanat* also executed trades via a broker-dealer affiliated with MarketXT, the beneficiary of the Nasdaq rebate program, concealing the fact that he was on both sides of each trade. In the current case, the Defendant trades were always clearly identified as such.

VI. Summary

29. The Defendant trades in question quite clearly profited from sharing in the MLSA revenues from UTC trading volume. Notably, however, the trades which qualified for MLSA revenues were also subject to considerable market risk, considering that as many as 46% of a sample of correlated pair trades and almost 20% of matched pair trades were not profitable during the period under question. Further, reflecting basis risk and other sources of risk, these losses could be (and were on May 30, 2010) significant.

30. Additionally, the profitability of trades in question were also subject to the risk that MLSA revenues were not guaranteed, and could only be estimated. The fact that MLSA revenues were surprisingly large and doled out months after trades occurred in 2009 highlight the uncertain nature of these revenues during the period in question. Far from the certain data sharing revenues cited in the *Amanat* case, this uncertainty added significant risk to Defendants' trades, including

current trades (since MLSA revenues were doled out up to a week in arrears), past trades (had PJM again changed the non-public revenue sharing formula months after these trades were executed) and future trades (if PJM changed the non-public formula at any point in time).

Appendix A--Documents Referenced

Written Submission to Commission Investigation Staff on Behalf of Powhatan Energy Fund, LLC In re: PJM Up-to Congestion Transactions (Docket No. IN10-5-000) dated October 21, 2011.

Written Submission to Commission Investigation Staff on Behalf of Dr. Houlian Chen In re: PJM Up-to Congestion Transactions (Docket No. IN10-5-000) dated December 13, 2010.

Preliminary Findings of Enforcement Staff's Investigation of Up To Congestion Transactions by Dr. Houlian Chen on Behalf of Himself and the Principals of Huntrise Energy Fund LLC and Powhatan Energy Fund, LLC, Docket No. IN10-5-000 presented in letter dated August 9, 2013 from Steven Tabackman, Attorney in FERC's Office of Enforcement to William M. McSwain, Esq.