Statement of Professor Larry Harris
In the Matter of PJM Up-to Congestion Transactions
Federal Energy Regulatory Commission
Docket No. IN10-5-000

Introduction

Powhatan Energy Fund LLC ("Powhatan") and its counsel, Drinker Biddle & Reath LLP, retained me to opine on whether the conclusions outlined by the Federal Energy Regulatory Commission ("FERC", "Commission") staff ("Staff") in its preliminary findings in the above-referenced investigation are well-founded.[1] Among other career highlights, I am a former Chief Economist of the SEC, and I have authored a book titled, "Trading and Exchanges: Market Microstructure for Practitioners." I hold the Fred V. Keenan Chair in Finance, and I am Professor of Finance and Business Economics at the University of Southern California Marshall School of Business. In Appendix A, I describe my qualifications in greater detail.

Staff concludes that certain Up-To Congestion ("UTC") transactions scheduled by Dr. Houlian (Alan) Chen ("Chen") on behalf of HEEP Fund Inc., CU Fund Inc., Huntrise Energy Fund LLC and Powhatan during the period beginning in February 2010 through August 3, 2010 violate the Commission's prohibition of energy market manipulation. I read the preliminary findings carefully and did not come to the same conclusion as did the Staff. Most notably, I found that the trades in question did not violate the Commission's prohibition of energy market manipulation. I further found that the trades did not violate any other reasonable definition of market manipulation. Instead, I found that Chen's trades were statistical arbitrage trades that he arranged with the expectation that they would be profitable due to, among other things, characteristics of a poorly designed market structure.

Before explaining the bases for my opinion, consider briefly the facts of the case.

Chen's Trades

I understand that Chen traded UTC contracts which provided for the sale and transmission of electric energy from one specified interface to a node within the PJM system under certain circumstances. Inherent in these trades was electric price risk—the risk that the prices of Day-Ahead and Real-Time electrical congestion would change to his disadvantage. Each submitted trade also required that the trader pay fixed costs per megawatt-hour to reserve transmission capacity and to provide for the operation of the PJM system. If these costs proved to be greater than the profits associated with changes in electric prices, the trade would be unprofitable.

As a result of entering these contracts, Chen's clients, and all other UTC traders subsequently received certain payments from PJM called Marginal Loss Surplus Allocation ("MLSA").[2] PJM's

[1] See "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".

[2] Chen and others sometimes refer to these payments as "Transmission Loss Credits".

FERC-approved tariffs specified the amounts of these payments. The excess of the charges paid for transmission line losses over the actual line losses funded the MLSA payments. The difference was positive because PJM priced expected line losses at marginal cost, which is above average cost. No trader knew the exact values of the MLSA payments when they submitted their bids.

Before the period in question, Chen traded UTC contracts primarily with the expectation of profiting from electric price discrepancies. As a result of these trades, Chen apparently learned to his surprise that the MLSA payments were sometimes larger than he expected. Based on research he subsequently conducted, I understand that he further determined that these payments varied with some predictability.

With this knowledge, Chen altered his trading strategies based upon MLSA payments that he expected to receive. He started to increase the volume of his trading when he expected that the MLSA payments would be large, and he sometimes made trades that he otherwise might not have made in the absence of the MLSA payments.

Chen initially arranged trades in closely related pairs of nodes. In particular, Chen submitted bids from node A to node B and from node C to node A where nodes B and C are closely related to each other. The net electric price risk from these trades generally was small, assuming both legs were accepted. FERC has called these trades "paired" trades.

I understand that Chen later also arranged trades to obtain financial exposure on electrical congestion from A to B while also arranging trades on congestion from B to A. These trades have been called "matched" trades. The net electric price risk associated with these matched trades would be zero, assuming that both legs of the trade cleared the auction.

Characterization of Chen's Trades

Chen's paired and matched trades are examples of statistical arbitrage trades, a type of spread trade. They are arbitrage trades because the risks inherent in the two legs of the trades tended to offset each other. They are statistical arbitrage trades because their profitability was not certain—the paired trades were exposed to some electric price risk, and both types of trades were exposed to the risk that MLSA payments would be smaller than expected or that one leg would not clear the auction.

A very common example of a statistical arbitrage strategy is the pairs trading strategy that arbitrageurs often execute in the stock markets. Arbitrageurs buy one security while simultaneously selling another closely correlated security. They arrange these arbitrages when they expect that their trades will be profitable after accounting for all costs and benefits associated with their positions. These costs include brokerage commissions, exchange access fees, payments in lieu of dividends (for short positions), and financing costs. The benefits include liquidity rebates, dividends received on long positions, and any gains from price changes that they expect.

The paired and matched trades that Chen conducted were qualitatively no different from this security market example. In particular, Chen expected to profit because the expected costs of entering these trades were less than their expected benefits. The fact that the costs (primarily

payments for transmission capacity and for system maintenance) and benefits (primarily expected MLSA payments) were a larger fraction of the underlying electric prices than are the costs and benefits associated with similar arbitrage strategies in the security markets does not alter their proper characterization as statistical arbitrage trades. Likewise, the fact that these costs and benefits often were larger than the profits due to expected variations in electricity prices also does not affect their characterization as arbitrage trades. Such relations also appear in security markets. For example, arbitrageurs often buy stocks cum-dividend and sell them ex-dividend with the expectation of net profits even though they expect to lose on the associated price drop. This arbitrage is profitable because the dividends paid generally exceed the expected price loss.

Chen clearly arranged his trades to profit from arbitrage opportunities. The fact that these arbitrage opportunities arose primarily because of a poorly designed mechanism for distributing MLSA payments did not make them illegal. Also, the fact that they were highly profitable did not make them illegal. Chen arranged his trades to take advantage of these expected payments, all of which were legally available to all UTC traders under FERC-approved tariffs.

Market Manipulation

Market manipulation consists of trading strategies and information dissemination strategies that are designed to affect prices for the purpose of generating trading profits on existing or soon-to-be-acquired positions.[3] For example, in a "pump and dump" manipulation, the manipulator buys or otherwise acquires stock that he hopes to sell later at a higher price. The manipulator then buys aggressively, encourages others to buy aggressively, or disseminates false positive information, all with the intention of driving prices higher to generate a profit on the initial position. In a variation of this strategy, the manipulator may do any or all of the above with the intention of raising prices so that the manipulator can establish a short position at overvalued prices. Either way, the manipulation is designed to produce a profit on a current or future position as opposed to a profit on the trades used to effect the manipulation. In the first case, the profits are realized on the initial position. In the second case, the profits are realized from the subsequent short sale of an overvalued security.

Likewise, in a "short and distort" manipulation, the manipulator sells stock that he hopes to buy back later at a lower price. The manipulator then sells aggressively, encourages others to sell aggressively, or disseminates false negative information, all with the intention of driving prices lower to generate a profit on the initial sale. In a variation of this strategy, the manipulator may do any or all of the above with the intention of lowering prices so that the manipulator can buy at undervalued prices. Again, in both cases, the manipulation is designed to produce a profit on a preexisting position, or a contemplated position, and not from those trades used to effect the manipulation.

[3] Chapters 11 (Order Anticipators) and 12 (Bluffers and Market Manipulation) of my book *Trading and Exchanges* provide an introduction to manipulative trading strategies.

In manipulations of the final payments of cash-settled contracts, a manipulator holding a long (or short) position in a cash-settled contract buys (or sells) the underlying instrument or disseminates false positive (or negative) information with the intention of raising (or lowering) the cash-settlement price and thereby generating an unfair profit. Once again, the manipulation is designed to produce a profit on pre-existing positions and not from those used to effect the manipulation.

In short squeezes and market corners, manipulators engage in behaviors that are designed to force traders with short positions to buy stock, contracts, or underlying instruments from the manipulator at inflated prices. Like all manipulations, these manipulations are designed to produce profits on preexisting positions, or soon to be acquired positions.

In a spoofing manipulation, a trader interested in buying, places an order on the sell side with the hope that another trader will place a lower priced sell order. If a lower priced order is submitted, the trader then buys from that order and immediately cancels his sell order. This manipulation is designed to fool other traders into making unwise trading decisions. In particular, submission of the false sell order can lower the price at which the manipulator ultimately acquires his position. A similar manipulation can also be done to raise the price of a sale. This manipulative strategy is essentially the same as shill bidding in an auction.

Finally, manipulators sometimes arrange trades to raise or lower closing prices in securities or contracts. These manipulations are called "window dressing" or "marking the close". Manipulators engage in them to raise the computed values of their positions or lower their margin payments. Once again, the benefits that they expect to receive are not from the manipulative trades themselves. In these manipulations, the benefits come from high reported portfolio returns (which can generate investment inflows) or lower margin cash outflows required to maintain their positions.

Wash Trading

Many manipulative trading strategies involve wash trading—the purchase and sale of the same instrument with no intention or expectation of profit on the transactions. Manipulators use these trades to fool other traders into believing that an active market exists in which many traders are willing to trade at the reported prices. Seeing such a market, other traders are more likely to attach higher valuations to the securities because they believe that they trade in liquid markets (such valuations are said to have a liquidity premium) and because they believe that many other buyers are willing to trade at the observed prices. Wash trading for the purpose of manipulating the information that other traders use to form their expectations of value is not permitted by the SEC.

FERC's Characterization of Chen's Trades

Staff's argument that Chen engaged in market manipulation fails to recognize that Chen's trades were statistical arbitrage trades. Chen traded with the expectation that each of his paired and matched trades would be profitable by themselves. Chen's trading strategies were not designed to produce profits on previously established or subsequently established positions. They were not designed to fool other traders into making unprofitable trades. They

were not designed to affect prices to his advantage. Indeed, any effect that Chen's trading had on prices diminished his expected profits. Finally, they were not wash trades designed to fool other traders into changing their estimates of value or initiating trades. For these reasons, Chen's trades cannot be characterized as being part of a market manipulation scheme.

Consider now the Commission's anti-manipulation rules, codified at 18 C.F.R. § 1c.2(a). They provide in pertinent part:

> (a) It shall be unlawful for any entity, directly or indirectly, in connection with the purchase or sale of electric energy . . . subject to the jurisdiction of the Commission,
>
> > (1) To use or employ any device, scheme or artifice to defraud,
> >
> > (2) To make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or
> >
> > (3) To engage in any act, practice, or course of business that operates or would operate as a fraud or deceit upon any entity.

With respect to point 1, Chen's trading strategy was not designed to defraud. It was designed in part based upon MLSA payments that were legally available to all UTC traders.

With respect to point 2, Chen (to the best of my knowledge) did not make any untrue statement of a material fact or omit to state a material fact necessary in order to make statements made, in the light of the circumstances under which they were made, not misleading. If Staff thought that he made misleading statements, I presume that they would have been identified in the Preliminary Findings.

With respect to point 3, Chen did nothing to engage in a fraud or deceit upon any entity. Chen did not defraud anyone by collecting MLSA payments that were available to all traders, and Chen did not deceive anybody by his actions or statements. As a UTC trader, he was entitled to the MLSA payments, and like all UTC traders, he was under no obligation to explain why he was arranging his trades.

Staff's identification of Chen's trades as wash trades does not make them manipulative trades. Although they clearly are arbitrage trades, I understand that some may misidentify them as wash trades since they generally did not expose Chen and his clients to much electric price risk. But such an interpretation logically also must classify all arbitrage trades that do not have much price risk as wash trades, which clearly cannot be the case. In any event, Chen's trades, even if incorrectly considered wash trades, were not made to manipulate the market.

What Actually Happened

Chen identified a means of arranging profitable trades that apparently was not fully contemplated by FERC, PJM, or perhaps some of the other market participants. He arranged these trades to his and his clients' benefit. In the process, he reduced the MSLA payments that other participants would receive.

Although the intention of the MLSA payment mechanism apparently was to return to system participants overpayments for line losses, Chen had no responsibility to arrange his trades to maximize MLSA payments made to others or to minimize MLSA payments made to him and his clients. In fact, he had a fiduciary duty to his clients to fully consider the MLSA payments when placing his trades. Given PJM's FERC-approved tariffs, Chen undeniably was legally entitled to receive MLSA payments for the trading that he engaged in.

Staff does not claim that Chen's trades were manipulative before the period identified by Staff. If Staff is to argue that Chen's strategies during the period were manipulative, it would have to distinguish between trades that Chen was allowed to do and those that he was not allowed to do. Any such distinction ultimately would have to specify a maximum degree of congestion risk reduction that Chen could effect through offsetting trades, or equivalently, a minimum amount of net risk that he must bear to qualify paired and matched trades as acceptable trades. Such a standard would indicate that trades with sufficient congestion risk relative to expected return are acceptable while those without are not. No US regulator or court to my knowledge has ever identified inappropriate behavior using such a standard in the absence of other improper behavior.

FERC and PJM took what they perceived to be corrective action when they changed the PJM tariff to eliminate the expected profits associated with Chen's trades. If they had wanted to prevent these trades, they should have made these changes or taken other actions earlier. The fact that they were unable or unwilling to make these changes earlier does not in any way imply that Chen engaged in market manipulation.

Chen arranged his trading to maximize his clients' profits, not to manipulate the markets or deceive other participants in them.

To hold that he engaged in market manipulation is to indict everyone whose behavior takes advantage of legally available opportunities. Our economy is rife with examples of such behaviors in which someone engages in legal activities that disadvantage others. Consider some examples:

1. Refiners legally formulate and produce the cheapest possible blended products that meet all product specifications, even though such products may not best serve consumers.
2. Taxpayers legally engage in transactions designed to avoid taxes, even though those transactions lower total tax revenues and often lead to unexpected and undesirable consequences, not least of which is that tax rates have to be set higher so that others must pay more to cover government expenditures.
3. It is legal to open accounts at mutual savings and loans for the purpose of participating in announced demutualization IPOs, even though doing so lowers the benefits that existing depositors will obtain from the IPOs.
4. Unless contractually or legally restricted, people can submit as many entries as they wish to lotteries that various sponsors conduct to promote products, even though this behavior disadvantages other participants and may subvert the purpose of the sponsor.

5. People legally buy and drive heavy SUVs for the purpose of protecting their lives in the event of a collision, even though doing so increases the probability that others will suffer greater injuries in the event of an accident, regardless of their liability.
6. Counting cards at blackjack tables is legal, even though doing so ultimately reduces the profits that casinos make, which in competitive markets reduces the odds that casinos offer to all gamblers.
7. Buying and hoarding "anytime" postage stamps before stamp prices rise is legal, even though doing so lowers post office revenues.
8. In California, solar water heaters were once so heavily subsidized by gas companies and by the state and federal governments that the financial benefits of installing a system were substantially greater than the costs of these systems. Owners legally could build much bigger and more expensive systems than were necessary to profit from the incentives. Those who did build such systems depleted rebate pools and thereby hurt other potential installers.
9. Purchasing and redeeming shares in open-ended mutual funds at times that they are undervalued or overvalued is legal (assuming that the orders are submitted before appropriate deadlines), even though doing so dilutes the investment values of the other shareholders. Following substantial episodes of market timing, mutual funds put restrictions on these practices to limit active market timing. Market timing was (and remains) illegal only when traders engaged in fraud to further their market timing strategies.

In all these situations, the remedy is to either accept the behavior, or adopt regulations to make the activity illegal or unprofitable. The remedy has never been to punish or prosecute the clever individuals for doing what they did.

In all markets, rational traders always make trading decisions based upon all the costs and benefits they expect will be associated with their trades. If contemplation of MLSA payments is permitted in the PJM UTC market, then Chen's trades were legal. But if contemplation of MLSA payments is not permitted, it is impossible to understand why every other rational trader's trades were not also illegal.

Appendix A

My name is Lawrence Harris. I hold the Fred V. Keenan Chair in Finance, and I am Professor of Finance and Business Economics at the University of Southern California Marshall School of Business.

Since obtaining my Ph.D. in Economics from the University of Chicago in 1982, my research, teaching, and consulting have addressed regulatory and practitioner issues in trading and in investment management. I have written extensively about trading rules, transaction costs, index markets, and market regulation. My book, *Trading and Exchanges: Market Microstructure for Practitioners* (Oxford University Press: 2003) provides an extensive introduction to the economics of trading. A book I recently edited, *Regulated Exchanges: Dynamic Agents of Economic Growth* (Oxford University Press: 2010) provides a history of the regulation of trading and prospects for future change.

I served as Chief Economist of the U.S. Securities and Exchange Commission from July 2002 through June 2004, where I directed the SEC Office of Economic Analysis in which 35 economists, analysts, and support staff engaged in regulatory analysis, litigation support, and basic economic research. During this time, my office and I worked extensively on market timing and late trading issues.

I currently serve as a Chairman of the Clipper Fund, Inc. (CFIMX), lead independent director of Interactive Brokers Group, Inc. (IBKR), and research coordinator of the Institute for Quantitative Research in Finance (the Q-Group).

In the past, I have served as an associate editor of the *Journal of Finance*, the *Review of Financial Studies*, and the *Journal of Financial and Quantitative Analysis*. I have also served as a director of CFALA—the Los Angeles Society of Financial Analysts, and as the director of the USC Marshall School of Business Center for Investment Studies.

I also have worked as a practitioner in the securities industry for the New York Stock Exchange; UNX, Inc., an electronic pure agency institutional equity broker; and Madison Tyler, LLC, a broker-dealer engaged in electronic proprietary trading in various markets.

I have been designated by the CFA Institute as a CFA charterholder, and I have written chapters for the curricula that the Institute distributes to CFA candidates and to candidates in its new Claritas certificate program.