

FEDERAL ENERGY REGULATORY COMMISSION  
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**By U.S. Mail and Email**

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**Re: 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**

Dear Mr. McSwain:

Staff of the Office of Enforcement (Enforcement) of the Federal Energy Regulatory Commission (Commission) provides, in the form of this letter, its statement of preliminary conclusions regarding the above-referenced investigation. As you are aware, since August 2010, staff has been examining certain trading activity by Dr. Houlian "Alan" Chen (Chen); specifically, his scheduling of Up To Congestion transactions (UTC transactions) in the PJM Interconnection, LLC (PJM) on behalf of his own funds, HEEP Fund Inc. and CU Fund, and on behalf of the owners and managers of Huntrise Energy Fund, LLC (Huntrise) and Powhatan Energy Fund, LLC (Powhatan). The purpose of this letter is to provide staff's factual conclusions, a non-exhaustive summary of the material evidence in the record that supports staff's conclusions, and in general terms, staff's legal analysis of the controlling legal principles. Staff also responds to certain arguments that counsel have raised to date concerning Chen's trading activity of interest.

This correspondence presents you with the opportunity to respond to staff's preliminary conclusions. Please note that staff has carefully reviewed and considered the lengthy submissions counsel has provided to date,<sup>1</sup> and address the material portions of the same herein. Therefore, it is unnecessary to repeat arguments and analysis that you have previously raised on behalf of your clients. To the extent you would like to submit a response to this letter, please do so no later than September 13, 2013.

## **I. Introduction**

Staff concludes that certain UTC transactions scheduled by Chen on behalf of HEEP Fund, CU Fund, Huntrise and Powhatan during the period beginning in February 2010 through August 3, 2010 violate the Commission's prohibition of energy market manipulation, 18 C.F.R. § 1c.2. At all relevant times, HEEP Fund and CU Fund were registered as market participants in PJM and under Chen's exclusive ownership and control. Chen also acted as the trading agent for Huntrise and Powhatan, funds owned directly or indirectly by the following persons: Kevin Gates; Richard Gates; Larry Eiben; Chao Chen; Greg Sekelsky; Mike Frederick, Virginia Eiben; Julia Gates; Sam Harris; Eric Newman; and Anne Gates. Staff finds that certain of Chen's trades were designed and executed with the intent to manipulate the PJM market to capture and maximize receipt of Marginal Loss Surplus Allocation (MLSA). Chen, for himself and with the support of the principals of Huntrise and Powhatan, designed and scheduled matched UTC transactions that had the same or nearly the same effect as what the law would label a "wash trade" or "sham" transaction. These trades were carefully configured to eliminate or reduce both profits and losses from price differentials in the market, and they also incurred certain costs related to scheduling the transactions. Yet, these same transactions profited, intentionally so, from collection of the MLSA based on associated transmission reservations. Although, during the period of relevant activity, transmission reservations were an incident of bidding and scheduling a UTC transaction to capture price differentials, Chen manipulated the PJM market by associating large volumes of matched UTC transactions with large volumes of transmission reservations for the

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<sup>1</sup> It is staff's understanding that you and counsel for Dr. Chen have shared with each other your respective submissions to staff. *See* Letter from William M. McSwain, Attorney for TFS Capital Principals and Entities, to Steven C. Tabackman, Attorney, FERC (Aug. 24, 2012); Supplemental Submission on Behalf of Dr. Alan Chen (March 16, 2012); Written Submission to Commission Investigation Staff on Behalf of Powhatan Energy Fund LLC (Oct. 21, 2011) (appending affidavits of Richard G. Wallace, Esq. and Dr. Richard D. Tabors); Written Submission to Commission Investigation Staff on Behalf of Dr. Houlian Chen (Dec. 13, 2010) (appending affidavit from Dr. Craig Pirrong).

purpose of collecting a large share of the MLSA<sup>2</sup> and with the intent to avoid the effects of price changes in the market.

In association with certain matched UTC transactions placed on behalf of HEEP Fund, CU Fund, Huntrise, and Powhatan, Chen collectively reserved more than 18 million MWh of transmission in the day-ahead market between February 1 and August 3, 2010. The matched UTC transactions lost approximately \$100,000 on price differentials in the market, and cost over \$6.6 million in charges imposed by PJM on the transmission reservations and submitted and cleared trades. Chen earned, however, almost \$11.5 million in MLSA from this trading activity. In short, these UTC trades by Chen collectively netted more than \$4.7 million in profit by manipulating PJM's energy market.<sup>3</sup> Section II of this letter outlines some of the critical evidence underlying staff's findings. Section III summarizes the law supporting staff's conclusions and addresses the material arguments previously raised by counsel.

## **II. Staff's Findings and Supporting Evidence**

### **A. The Up To Congestion Transaction and the Marginal Loss Surplus Allocation**

#### **1. The Up To Congestion transaction**

PJM is a Commission-jurisdictional Regional Transmission Organization. The UTC is a virtual product that earns or loses money on the change between the Day Ahead Market (DAM) and the Real Time Market (RTM) of the spread in prices between two price nodes in PJM's system. The trader places a bid in the DAM for the desired number of MWhs during the hours and at the node pair he specifies. If the bid price is greater than the DAM price differential (the spread) between the nodes, the bid will likely clear. The bid price may be no less than negative \$50 and no greater than positive \$50. If the RTM price spread at those nodes changes favorably relative to DAM price spread, the trader is paid the difference between the spreads. The trader must pay the difference when the spread change is unfavorable.

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<sup>2</sup> A MW is eligible to receive MLSA when it reflects one MW of UTC transaction associated with one MW of transmission reservation on a path that does not sink into MISO.

<sup>3</sup> Staff believes that there may be additional trading activity by Chen of interest in this investigation. This activity potentially includes additional trades on behalf of HEEP Fund, CU Fund, and Powhatan in the months of June, July, and August 2010, and also certain trades on behalf of HEEP Fund and Huntrise in the months of February, March, April, and May 2010. Staff is currently analyzing trade data to determine whether and to what extent the preliminary findings expressed in this letter apply to other trades by Chen.

Prior to a change in PJM's tariff in September 2010, PJM required that a trader scheduling a UTC transaction associate that schedule with a transmission reservation. Chen, like typical UTC transaction traders, used the least-cost transmission service option: non-firm point-to-point transmission. Throughout 2010, this type of transmission service cost a maximum discounted rate of \$0.67/MWh of reservation.<sup>4</sup> Traders seeking to schedule UTC transactions would, before placing bids to schedule those trades, reserve transmission for the hours of the intended schedule. Confirmed reservations received a transmission reservation ID, which the trader was required to associate with his bid to schedule UTC transactions. The trader also paid for the ancillary services of reactive power and black start, which PJM assessed against the MWhs hours of transmission reserved and purchased and which averaged \$0.17 per MWh.

In addition to the costs associated with reserving the transmission needed to bid the UTC transaction schedule, the UTC transactions also incurred – in 2010 and through the present – market charges. PJM has and continues to assess to each successfully-scheduled UTC transaction the following ancillary service charges: “market support”; a charge to support the market monitoring unit (MMU); and an assessment for the secondary control center. These charges fluctuate little and are typically between \$0.03 and \$0.05 for each MWh successfully scheduled.

Thus, during the period of Chen's trading of interest, profit from UTC transactions by virtue of arbitrating price differentials in the market required a change in the price spread that is both favorable and greater than the total costs incurred by scheduling the transactions and reserving the associated transmission. Chen knew this. And throughout his several years of trading in PJM, he regularly scheduled UTC transactions where he anticipated that his profits from the trade would come from price movements and where he understood that those same price movements also presented a risk of loss. Pursuant to this market risk, the RTM price may result in an unfavorable, or only slightly favorable, price spread change that either loses money on both the price differential and the related costs incurred to schedule it, or alternatively does not earn enough profit on the price differential to cover those costs. Chen, or any trader seeking to arbitrage market price differentials through UTC transactions, would avoid scheduling UTC transactions at node pairs that are not projected to exhibit favorable spread changes in amounts exceeding the

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<sup>4</sup> The transmission cost may sometimes receive a congestion adjustment offsetting the cost of the transmission. The congestion adjustment applies to transmission paths for which the DAM congestion price spread is wider than the RTM congestion price spread, and may offset the congestion price losses up to the full \$0.67 per MWh. Because of this congestion adjustment, Chen's average transmission cost, for the paths he used that incurred a reservation fee, was approximately \$0.31 per MWh. While the congestion adjustment affects the calculation of unjust profits in this investigation, it is not material to staff's conclusions of intent or culpability.

total charges assessed against the transmission reservation and hours of successfully-scheduled trades.

## 2. The Marginal Loss Surplus Allocation

Transmission line loss charges are a component of the per-MWh price of electricity in the PJM market. PJM uses the marginal loss method to calculate the charges to cover these line losses, which over-collects the cost of the losses. Pursuant to section 5.5 of the appendix to Attachment K of PJM's tariff, MWhs of successfully scheduled trades associated with paid-for transmission<sup>5</sup> in a given hour receive a proportionate share of the surplus collected throughout the entire PJM market for the hour. This distribution is known as the Marginal Loss Surplus Allocation, or MLSA.

As of September 17, 2009, PJM's tariff expressly included in the MLSA distribution any MWhs of UTC transactions scheduled against transmission reservations for which the trader paid a charge. On that date, PJM also committed to retroactively resettle the MLSA through a prior, fifteen-month period so as to include the eligible UTC trading activity in the distribution for those months. PJM performed the resettlements, and the charges and credits for the prior period appeared on the settlement statements issued in November 2009 through February 2010. In addition, these settlement statements reflected PJM's distribution of MLSA to MWhs made eligible through scheduling of UTC transactions in October 2009 and going forward.

PJM divided the surplus line losses collection by all eligible MWhs, without regard to the type of transmission service or difference in cost of that service. Thus, every MLSA-eligible MWh of transmission reservation received the same per-MWh allocation, even if the reservation was for non-firm point-to-point transmission service at \$0.67 and the per-MWh allocation was more than that. Some market participants noticed this, realizing that in certain hours the MLSA appeared to be higher than the fixed costs of the transmission reservation plus the knowable range of other charges by PJM. If a trader could identify a node pair where changes in the price spread between the DAM and RTM consistently produced a de minimis profit or loss, or create wash-like or sham pairs of transactions with price spread changes that netted to a zero or near-zero profit or loss, that trader could design and use UTC transactions scheduled against transmission reservations as a vehicle to receive MLSA. The MLSA, in turn, consistently paid more than costs related to scheduling the UTC and transmission throughout certain hours of the day. The larger the transmission reservation that the trader paid for and successfully

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<sup>5</sup> "Paid-for transmission" refers to transmission reserved on paths sinking outside of MISO. Because transmission reserved on paths sinking inside of MISO was free of charge, that transmission was not eligible to receive a share of the MLSA even if it was associated with bid and cleared UTC transactions.

scheduled against these carefully-designed UTC transactions, the more MLSA the trader received.

As of September 2010, UTCs are no longer eligible to receive MLSA. Because of certain UTC transactions, including those scheduled by Chen and described in this letter, PJM sought to amend section 5.5 of the appendix to Attachment K of its tariff. The Commission approved the amendment, which eliminated the requirement that the trader must have an OASIS ID to schedule UTC transactions; consequently, UTC transactions were no longer associated with transmission reservations and therefore were no longer eligible to receive MLSA.

### **B. Dr. Chen and His Up To Congestion Trading in 2008 and 2009**

Dr. Houlian “Alan” Chen is an experienced energy trader with a doctorate in electrical engineering who, as of summer 2010, had more than a decade’s experience as an energy analyst and trader. In August 2007, Chen formed his own company, HEEP Fund, which he registered with PJM in September 2007 as a trading market participant.<sup>6</sup> He possessed extensive experience with and knowledge about UTC transactions: in the three years from September 2007 through September 2010 he traded almost exclusively the UTC transaction using his own detailed analysis of the PJM trading nodes.

According to testimony, Chen met Kevin Gates, a principal at investment advisory firm TFS Capital, in the spring of 2008. Gates was interested in investing in or trading power. Chen and TFS Capital entered into an advisory agreement in or around April 2008, wherein Chen traded power in Commission-jurisdictional energy markets on behalf of TFS Capital. Chen could continue to trade on behalf of HEEP Fund, but for every one MWh of trade Chen placed for HEEP Fund, his agreement obliged him to place 2.5 MWh of the same trade on behalf of TFS Capital. In June 2008, Gates, and fellow TFS Capital principals and investors, created Huntrise. As of approximately June 2008, Chen ceased trading directly for TFS Capital and entered an advisory agreement with Huntrise. As with the former agreement, Chen continued to trade for HEEP Fund with the caveat that he would place up to 4 MWh of the same trade on behalf of Huntrise.

Chen’s trading activity records, confirmed by his testimony, show that during the remainder of 2008 and through the end of 2009 Chen traded only in PJM and only UTC transactions on behalf of HEEP Fund and TFS Capital/Huntrise. Documents produced by Chen and the TFS Capital principals demonstrate that Chen provided detailed daily and monthly trading reports listing UTC node pairs, hours and volumes traded, hourly prices, and other relevant information. In or about October 2008, Gates and his partner, Chao

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<sup>6</sup> The Commission granted HEEP Fund market-based rate authority effective May 3, 2008. *See* Letter Order Accepting HEEP Fund Inc. Market Based Rate Authorization for Filing, Docket No. ER08-797-000 (May 30, 2008).

Chen, met with Chen to discuss his UTC transactions and gain a deeper understanding of the mechanics of the UTC transactions and Chen's strategy in selecting node pairs. According to testimony, Chen described to the TFS Capital principals his strategy for earning profit from his UTC trades. Later, in July 2009, Chen granted Gates and his partner full access to HEEP Fund's confidential business and proprietary trading strategy under a Non-Disclosure Agreement between HEEP and Huntrise.

Chen's initial strategy with PJM's UTC product, as he explained and demonstrated over the course of 2008 and 2009 to the TFS Capital/Huntrise managers and later confirmed in his testimony to staff, was a legitimate, "low-risk, low-reward" trading strategy. Chen engaged in "directional bets" whose profitability depended on the favorable change of congestion between the DAM and RTM. Chen endeavored to reduce his risk by placing his trades in small volumes – the majority of his bids were under 100 MWhs – and selecting what he called "correlated pairs" as his transaction node pair. According to Chen, a pair of nodes correlated when their respective prices "move in the same direction typically." The two nodes in his node pair had prices that moved in the same direction because of their geographical proximity.<sup>7</sup> Consequently, he predicted that the nodes would rarely manifest an unexpected price spread change that would lose Chen a large amount of money. At the same time, Chen believed the price spread change at these node pairs could be relied upon to produce a low but consistent positive return over time.<sup>8</sup> Chen regarded this strategy as a "low risk, low reward with high reward potential." As Chen testified, in following this strategy, "you're not going to lose a lot of money, and that's the minimum."

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<sup>7</sup> Much of this trading used nodes in the western area of PJM and the MISO interface, for which he had conducted an extensive analysis of "every single day [for] every single hour" of the five-year period prior to his founding of HEEP Fund in August 2007. Through his analysis, he developed expectations at these nodes in terms of price changes between the DAM and RTM, and could design import or export UTC transactions at selected node pairs consistent with the anticipated price fluctuations. The PJM internal nodes he chose for his trades would "move in the same direction typically" and "fluctuate with" the LMPs at the MISO interface.

<sup>8</sup> Chen associated these trades with discounted non-firm point-to-point transmission service, which cost up to \$0.67/MWh. He expected that the low but consistent returns on these UTC transactions would be sufficient to cover the transmission reservation cost and all other transactional charges.

## **C. Chen Adapts His UTC Trading Strategy as of Early 2010 Based on MLSA Payments**

### **1. Chen changed his strategy**

Chen first became aware of the MLSA in November 2009, when he received the monthly PJM statement that for the first time included retroactive MLSA. He called PJM about the retroactive credits, and learned how PJM determined which MWhs of his transactions in the period December 2007 through March 2009 were eligible to receive the allocation. He immediately began analyzing the effects of these credits for “transmission losses” on his prior trades, and informed Gates of what he learned. In a December 2009 email, Gates informed his partners that although Chen had lost approximately \$30,000 in November on his UTC trades for that month, Huntrise netted more than \$400,000 because of PJM’s crediting of MLSA for a prior five-month period. As Gates stated, “net-net, we ‘made’ \$410,000 last month.”

Chen testified that when he had received all the MLSA payments through January 2010, it afforded him “a couple years of history” to analyze. Chen developed a model designed to predict the amount of MLSA payment in a given hour based on system conditions. As Chen acknowledged, by the time he received the February 2010 statement, he “ha[d] a pretty good handle” on how the MLSA affected the return on certain UTC transactions. He learned that the MLSA would be larger in “the colder winter, hot summer.” Then, “you gain the transmission loss credit to cover all the [transaction] charges.” He also recognized that during milder weather, in the “shoulder months . . . the demand tend to be lower. The transmission loss is lower. . . . the surplus is lower,” and “you could lose money if you do paired trades” during those months. In other words, the MLSA in milder weather may not be enough to cover the transmission reservation fees, market charges, and ancillary service charges incurred in scheduling the paired UTC transactions. Chen shared these conclusions with Kevin Gates of TFS Capital in a series of emails exchanged in March and April of 2010.

Shortly after performing his analysis on the retroactive MLSA payments, Chen began implementing changes to his strategy for trading UTCs in February 2010. He also began to increase the MWhs of the UTC transactions he placed on behalf of HEEP Fund and Huntrise. As confirmed by his testimony, he began to experiment with a new approach of looking for two pairs of price nodes for placing two UTC trades that Chen correlated with each other. One node pair would export to the MISO interface and the other pair would import from the MISO interface, creating a transmission pattern of A-to-B/B-to-C. Chen testified that, by selecting PJM nodes that historically experienced similar price movements between the DAM and RTM, he sought to reduce “the spread risk” – i.e., the risk associated with price changes relative to the MISO interface. Chen’s strategy reduced the possibility of loss from price changes because of the offsetting that the export provided for the import. For example, Chen scheduled a large volume of UTC



transactions at the node pairs Mt. Storm to MISO and MISO to Greenland Gap. Because Mt. Storm and Greenland Gap are geographically proximate, they each had similar price movements and therefore similar congestion price spread changes against the MISO interface. The DAM-RTM spread change of the Mt. Storm-to-MISO export would be approximately equal in amount but simply the negative of the DAM-RTM spread change of the MISO-to-Greenland Gap import. Thus, gains from the spread change of one node pair would reliably equate to or nearly equate to losses from the spread change of the other node pair. The settlement of the two UTC transactions in each export/import pair would reliably net to a de minimis amount of gain or loss.

In sum, Chen's strategy of creating these paired transactions sought to avoid both profit and loss from price changes in the market. In other words, Chen had little or no expectation of profit from market fundamentals but instead sought to derive profit solely from loss credits.<sup>9</sup> Moreover, because Chen's new trading strategy correlated UTC transactions with select, PJM internal nodes that had similar congestion price changes, the gains and losses from the two matched transactions would offset each other; but Chen would incur the market and ancillary service charges and transmission reservation fees associated with scheduling the trades. Chen relied on anticipated MLSA payments, which frequently more than covered the guaranteed losses occasioned by the costs of scheduling the paired UTC transactions as well as the marginal net losses, if any, from the price differentials. And Chen found he could predict, with great success, the hours in which the MLSA would more than cover his transactions' transmission service, market, and ancillary service charges.

2. The Huntrise/Powhatan principals understood Chen's new trading strategy and partnered with Chen to profit from it

Chen outlined this new trading strategy for the principals of Huntrise on March 5, 2010. Chen sent Gates the profit-and-loss (P&L) statement of his February 2010 UTC trading for HEEP and Huntrise. The report separated the returns from the UTC transactions, as offset by ancillary service charges and transmission reservation fees (Huntrise lost \$382,853 during the month), from the MLSA subsequently distributed to Huntrise (a credit of \$646,993). Thus, although the UTC transactions scheduled for Huntrise lost money as a result of the congestion price changes in the market, Huntrise enjoyed a net profit of \$264,141. Similarly, HEEP Fund lost \$113,093 on the underlying

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<sup>9</sup> An analysis of two sets of paired trades – Mt. Storm-MISO/MISO-Greenland Gap and East Bend-MISO/MISO-Miami Fort 7 – revealed that, for the hours in which Chen made these trades up through and including May 30, 2010, the trades yielded positive returns after accounting for both the LMP differentials and costs only 2% of the time. Only after accounting for the credit from the MLSA did the trades yield a more frequent positive return – that is, in 54% of the hours.

trades, ancillary service charges, and related transmission reservation fees during February, but received \$175,962 in MLSA for a net profit of \$62,869. In his cover email, Chen explained (referring to the MLSA as “TLC”):

As you can see from the reports, without TLC, we would have lost money in February 2010[;] and it is not a small amount either.

Chen also told Gates, “February 2010 [was] the first month I really started taking advantage of the TLC” – although he had used “only 25%” of the “TLC advantage” (up from “0% of TLC advantage in January 2010”) – and noted that “we are still a long way to go to fully take advantage of the TLC.” He reported “that I’m now using about 50% of the TLC advantage in March 2010.... My thinking is that we are going to keep current volume level for March 2010, gradually lower it for April 2010 and May 2010, and then move it back up (or even higher) for June 2010, July 2010, and August 2010, etc.,” because “TLC advantage tends to shrink a lot during shoulder months,” when “the weather is mild.”

Gates remarked on the increase in the MWh volume of the trades. “Wow. Before looking at this data, I didn’t realize you scaled up so much recently.” He asked whether the increase was “largely a result of the TLC.” Chen responded:

Before and in January 2010, I didn’t specifically target for TLC. Starting in February 2010, I kicked up a notch targeting for TLC. In March 2010, I added some more. Without TLC, I would not touch some of the trades and/or would not put in large volumes for some of the trades. But with TLC as is, they are suddenly becoming risk-free (almost to the point) trades. I’ll take down a little bit starting tomorrow knowing that we are leaving a lot of money on the table.

Gates had concern that “it seems that our exposure has ramped-up significantly recently,” to which Chen responded as follows.

The volumes have been increased pretty significantly, but the risks associated with the trades are actually lower than before. Most of the added volumes came from correlated pairs that produce a few cents or tens of cents up-side with almost no down-side risk. Without TLC, the transaction costs would absorb them and deem them unprofitable.

Chen further explained that “[f]or the first 5 days” of March, the funds lost “around \$180,000.00” in “estimated transaction costs” but nevertheless “[w]ith TLC, we are probably making \$45,000.00.”

Chen had his own concerns that the parties would not be allowed to retain the distributed MLSA, which was the basis of his new strategy's profitability:

It is a good thing that we are making money, and I'm pretty sure about it if TLC refund continues as is. The bad thing is it really concerns me if PJM ever reverts back to those days without TLC or the TLC calculation was/is incorrect and we have to pay back all or some of the TLC refunds, we are going to be in big trouble. I have not heard anything about this at all, but just the thought nags me a lot.

Gates agreed, saying, "[i]f you're really concerned, then I'm really, really concerned" and asked "why not contact a law firm, the FERC, or PJM to try to get more insight into this issue." Neither Chen nor anyone else involved with Huntrise did so.

Gates discussed the same concerns with other Huntrise investors. Chao Chen, who also had an interest in Huntrise, testified later that he shared the concern that "we are getting paid a lot of TLC's and it might not last forever" because "it was too big of an opportunity." He believed that when PJM "realized that there was a loophole"—which he defined as "an anomaly, something that nature shouldn't allow"—"the concern was they would retroactively try to close the loophole."

Gates confirmed in testimony to staff that he understood that Chen "was altering the types of trading that he was doing because of the expected TLC." In a March 5, 2010 email, Gates informed the Huntrise managers and investors "that \$2.1 [million] of the \$3.6 million that Alan made was in the form of the Transmission Loss Credits." He suggested to his partners, "I'm game for closing down [Huntrise] soon, and opening up a new entity and scaling up." On March 19, 2010, Gates sent an email to his partners expressing the view that the opportunity to make money from Chen's strategy was "too exciting and we need to have a lot of exposure this Summer." He later confirmed in testimony, "The big thing about scaling up was the opportunity of the transmission loss credits. There was a tremendous opportunity that existed then. It was a more attractive trade." Attached to Gates's March 19, 2010 email was a seven-page document entitled "Rampin' up with Alan Chen," which stated that "PJM just changed things, such that UTC traders receive Transmission Loss Credits ("TLC")." Gates further explained that Dr. Chen was "participating more heavily in the TLC trade which he describes as almost a risk-free way to make money." While noting Chen's "fear[] that PJM could change its mind, and could force UTC traders to pay TLCs," he suggested that Dr. Chen "feels that way because it's just too easy for him to make money now." The document advocated that Huntrise should "scale up" its investment in this trading activity of Chen's.

Gates's brother and partner, Richard Gates, agreed with the idea of replacing Huntrise with a new fund and agreement in order to increase investment with Chen.

Acting on behalf of the Huntrise investors, Gates negotiated an agreement with Chen to increase the multiple of HEEP Fund trades from four to twenty. In May 2010, Gates and his partners formed a new fund called Powhatan Energy Fund, LLC, which became the new vehicle for trading in PJM through Chen.<sup>10</sup> They entered into a new advisory agreement in which Chen placed the same trades for Powhatan that he placed for his own fund, HEEP, but at a MWh volume ratio of 20-to-1. Chen began trading for Powhatan on May 28, 2010.

**D. Chen Modified His Matched-Pair Trading Strategy on June 1, 2010 by Pairing Opposing Identical Transactions**

1. Chen learns his scheme is not fail-proof

Because of the five-fold increase in the MWhs of trades placed on behalf of the investors relative to the MWhs placed on behalf of HEEP Fund, the trading volume that Chen scheduled for May 30, 2010 was significantly larger than the volumes he had been scheduling while under contract to Huntrise. Chen experienced an unexpected major trading loss on May 30, 2010. Chen's paired UTC transaction between the MISO interface and the Greenland Gap node in PJM experienced what Chen believed to be an unexpected congestion price spike. The correlated transaction between the Mt. Storm node in PJM and the MISO interface did not experience the price spike. Consequently, these trades scheduled on behalf of HEEP Fund and Powhatan lost almost \$180,000 on the change in price spreads, and additionally lost more than \$18,000 on costs to schedule the transactions. Because those trades earned just under \$22,000 in MLSA, this one set of transactions collectively lost more than \$176,000 on that day.

Chen's strategy on paired trades such as the UTC at the Mt. Storm-to-MISO nodes paired with the UTC at the MISO-to-Greenland Gap nodes depended on a minimal spread between the nodes internal to PJM (Mt. Storm and Greenland Gap) in order to maximize profit from the separate and subsequent distribution of MLSA. The unanticipated price divergence that occurred on May 30 with respect to his Mt. Storm-MISO/MISO-Greenland Gap paired UTCs lost money in an amount that exceeded the MLSA payments for these transactions and related transmission reservations. Chen opined to Gates that his own trades may have contributed to the surprising divergence: the large volume of his trades may have "exacerbated the day-ahead spreads and I suspect the trades we put on affected the day-ahead model runs so much that some of the spreads are looking abnormal to me." Gates in turn advised his partners that "[t]he big concern

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<sup>10</sup> The Commission granted Huntrise market-based rate authority effective August 30, 2008. *See* Letter Order Granting Huntrise Energy Fund, LLC Market Based Rate Authorization, Docket No. ER08-1202-000, et al. (Dec. 12, 2008). Powhatan did not request market-based rate authority from the Commission.

are Alan’s comments about high volume. It seems the market isn’t as scaleable as Alan thought.”

2. Chen revised his strategy again and increased his trading activity

Following this May 30 loss, Chen considered what he could do to avoid that outcome in the future. His solution was to further “reduce the spread risk” by “shrink[ing] the two [PJM] nodes into one.” Chen’s testimony and trade data indicate that he decided to alter his spring trading strategy from the matched-pair strategy that caused this loss to a matched-pair strategy in which he scheduled offsetting volumes of UTC transactions to and from MISO from the same location in PJM (i.e., A-to-B/B-to-A). Thus, any profit (or loss) from the UTC transaction scheduled at the A-to-B node pair would be offset to zero by the equal loss (or profit) from the UTC transaction scheduled at the B-to-A node pair.

Gates and the other managers of and investors in Powhatan understood the change. As Gates explained in his second deposition by staff:

I remember [Dr. Chen] saying ... very early on during Powhatan’s trading, that he was very clearly trying to eliminate that, and he was going from A to B – B to A.

This new, opposing identical pair strategy eliminated the risk that *any* spread could occasion either profits or losses, assuming both legs of the matched pair cleared, because the two matched transactions’ spread change offset each other perfectly. This strategy, in essence wash trades, guaranteed the result that Chen would net zero on the spread. He would necessarily lose money after paying transaction costs on every trade because the LMP differentials would net to zero dollars, but “profit” from receipt of MLSA. As Chen testified, when he used these matched trades and both of the trades cleared in the DAM, the possibility of profit depended entirely on whether the amount of MLSA distributed afterwards exceeded the fixed charges associated with the transactions.

To increase his ability to profit for his own account, Chen established a separate entity under the name CU Fund on July 17, 2010. This fund, unlike HEEP, was untethered to the trades Chen placed on behalf of Powhatan. Chen scheduled some of the same MLSA-dependent matched-pair trades on behalf of CU Fund that he scheduled for HEEP and Powhatan, and entered as much as 10,200 MWh of volume per hour for CU Fund. Chen successfully scheduled 100% of the volume of the more than 2.6 million MWh of UTC transactions that Chen bid on behalf of CU Fund.

3. The Huntrise/Powhatan principals understood Chen's revised trading strategy and continue to derive profits from it

The Powhatan principals understood the changes in Chen's trading strategy and the reason for it. Gates testified to staff that Chen's original UTC trading before those transactions received MLSA was "specific to his ability to model congestion, his ability to model the day-ahead versus the real-time spread. That was the only risk in the portfolio." Gates clearly expressed what he perceived to be the new purpose of the matched-pair strategy: it was meant to "reduce the variability of the day-ahead versus real-time spread" – that is to say, "his objective was to drive that term to zero" – and that the "purpose of going paired trades ... is to remove risk." Gates testified:

Without a doubt at some point that summer ... I knew that that was one way that he was introducing risk into the portfolio, was trying to drive [] the day-ahead versus real-time, to zero and isolate the bet to his ability to model the marginal loss credit ... that [] would exceed the fixed costs associated with fixed trade.

Gates acknowledged to staff that, absent the MLSA, the expectation of losing money on these trades "wasn't merely highly likely. It was guaranteed. You were going to absolutely lose money on that trade." Gates understood that the only risk in Chen's UTC trades was "a new risk that the [MLSA] revenues would exceed the costs associated with the trade":

[H]e moved electricity from point A to point B and point B back ... with the objective of his ability to model the transmission loss credit and other revenues would exceed [the transaction costs].

Chao Chen similarly understood that Dr. Chen's "objective was to reduce risk in the account by ensuring that his modeling ... ensure[d] that both legs of the trade were accepted, to understand the pricing of the nodal risk within the market, and to model the uncertainty of the transmission loss credit or the potential payout." But Gates did not think that this new risk was significant. In fact, Gates believed that Chen "had some sort of model that I wasn't privy to where he was able to model the expected transmission loss credits."

The new matched-pair strategy yielded immediate results. On June 7, Chen informed Gates that

[W]e are losing quite a bit of money and for the whole day it is approaching -\$60K. But we are still making more than

\$40K up to date (due to the updated TLC data of 6/2: making \$63 instead of losing \$56,742).

A few days later, on June 9, Gates informed his partners that

Alan estimates that we're up \$78,000 for the month of June so far. But, I've learned that Alan persistently provides low estimates (he has to assume a Transmissions Loss Credit, until it's posted about a week after the fact), so I'm really guessing that MTD we are up over \$100,000.

By June 17, the new strategy was performing so well that, as Gates informed his partners, "Alan currently estimates that he's made as much money in Powhatan MTD as he lost as the end of May."

On June 25, 2010, Gates convened a meeting with Chen to discuss this new MLSA trading strategy. At the meeting, Chen testified later, he explained that one of the reasons for the large loss on May 30 was that the volume was so large. Questioned about the risks of the new, matched-pair trading strategy, he identified two risks – that one leg would not clear and thereby expose the trader to the spread risk of the other half of the matched pair, and that the MLSA payment would not cover the UTC transaction costs. Gates understood that the goal of the matched pair trades was to "drive the day-ahead and real-time spreads to zero" and that the matched-pair trades were "definitely" money-losers but for the payment of the MLSA.

Within hours after this meeting, Gates, Chao Chen, and other Powhatan investors exchanged emails about whether to meet with a different group of energy traders who specialized in UTC transactions. Having reviewed the traders' summary presentations, Chao Chen was "not that excited about it." In particular, he related his belief that UTC "is just a loophole that anyone who knows about it can exploit. There is very little skill." Chao Chen later testified that Chen's UTC trading reflected a "[p]oorly designed market" and "not...a properly designed set of rules .... because it seems that it requires very little skill to make money." Gates "agree[d] that UTC is a loophole that probably a dummy can exploit" but said that they "should drive a truck thru that loophole." As Gates later testified, the matched-pair strategy ensured easy profits:

from what I know about the structure, [] a monkey could have made trades in the market, and randomly picked nodes to move electricity to and nodes to move electricity from and taken the bet that the marginal loss credit plus other revenues would have exceeded it during the summer months.... I believe a monkey [] throwing darts at a dartboard would have been net profitable during this time period.

The effortless profits also raised questions for both Chao Chen and Gates. Chao Chen later recalled that Gates “expressed concern about the wisdom of the PJM for allowing the trade.” Gates himself testified that he thought

[Alan Chen] realized from a policy standpoint the transmission loss credit was a bad policy. If he was the one designing the marketplace and he had the responsibility to the marketplace.... I don’t think he would have instituted this TLC. I think he would say rebates or transmission loss credits ... are encouraging the wrong behavior.

But Gates also recognized that Chen’s matched-pair trades targeting the MLSA were the basis of Powhatan’s large profits. For instance, Gates told Kevin Byrnes in mid-July to “please keep it strictly confidential when talking with others that we’re engaging in the ‘UTC’ trade. Really, just knowing about this inefficiency is our only edge.”

Chen, Gates, and the Powhatan investors were aware that the large trading volumes necessary to effectuate their MLSA-based trading strategies adversely affected the whole PJM market. Chen first expressed his concern that the large-volume trades he placed for HEEP Fund and Powhatan contributed to the unanticipated price divergence that resulted in losses on May 30. But Chen’s trades experienced large losses several times during the summer of 2010 on his non-matched-pair trades. On July 12, 2010, Chen and the Powhatan investors discussed the fact that Powhatan was facing a loss on their other, non-paired UTC transactions that day on the “(DA – RT) spread between nodes” because the “high volume trades we put on” – referring to the matched-pair UTC transactions – were “moving the market.” Chao Chen complained to Kevin Gates and the other investors that “we are trading too much and are bumping up against volume” and suggested that “we should scale back.” Gates began to monitor the volumes more closely after this. On July 25, Gates asked Chen why he had “almost 360K MW on today, and 330K MW on for tomorrow,” after a recent loss that had prompted Chen to advise he would decrease volumes. Chen responded: “I think the hot weather is not going to last any longer.... So I added more volume for today and tomorrow.”

#### **E. Amount of Unjust Profits Earned by Chen and the Huntrise/Powhatan Investors from UTC Transactions Directed at the MLSA**

Overall, the evidence shows that Chen applied his matched-pair strategy aimed at earning MLSA during the period February 2010 through August 3, 2010.<sup>11</sup> During this period, Chen acquired nearly 620,000 MWh eligible to receive MLSA by reserving more

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<sup>11</sup> The summary numbers in all table presented reflect the sums and averages from matched volumes during hours in which the UTC paths listed were traded and accrued MLSA.



than 1.2 million MWh of transmission associated with matched-pair transactions on behalf of HEEP. These transactions lost more than \$440,000 cumulatively from the price differential and from costs incurred through transaction- and transmission reservation-related charges, but earned almost \$640,000 in MLSA, for a net profit of approximately \$195,000:

HEEP FUND TRADES OF INTEREST													
UTC Path	Time Period			UTC Profits and Losses					Volumes			Average Bid Price	
	First Date	Last Date	Number of Days	LMP Differential (\$)	Transaction Costs (\$)	Profit or Loss w/o MLSA (\$)	MLSA (\$)	Total Profit or Loss with MLSA (\$)	MLSA-Eligible (MWh)	Up To Congestion (MWh)	Associated Transmission (MWh)	Leg 1	Leg 2
EBEND_MISO-MISO_MFORT7	1-Apr-10	21-Jun-10	46	1,703.00	(32,883.41)	(31,180.41)	39,515.91	8,335.50	43,350	86,700	86,700	\$25.00	\$35.00
EBEND_NYIS-NYIS_MFORT7	2-Mar-10	2-Mar-10	1	(70.00)	(3,315.26)	(3,385.26)	3,723.21	337.95	4,800	4,800	4,800	\$50.00	\$50.00
EBEND_OVEC-OVEC_MFORT7	3-Mar-10	13-Mar-10	9	(457.25)	(21,313.69)	(21,770.94)	19,715.51	(2,055.42)	25,200	25,200	25,200	\$25.00	\$25.00
MISO_AEP-AEP_MISO	2-Jun-10	20-Jun-10	19	-	(9,744.35)	(9,744.35)	14,244.32	4,499.96	14,160	28,320	28,320	\$35.00	\$25.00
MISO_APS-APS_MISO	29-Jun-10	29-Jun-10	1	-	(44.65)	(44.65)	111.64	66.99	80	160	160	\$50.00	\$50.00
MISO_COMED-COMED_MISO	2-Jun-10	3-Aug-10	63	-	(88,168.51)	(88,168.51)	148,958.80	60,790.28	125,130	250,260	251,180	\$42.65	\$39.48
MISO_COOK-COOK_MISO	19-Jun-10	3-Aug-10	46	-	(35,669.19)	(35,669.19)	67,536.78	31,867.59	55,680	111,360	112,320	\$45.15	\$45.89
MISO_DAY-DAY_MISO	1-Jun-10	3-Aug-10	64	-	(69,233.99)	(69,233.99)	122,339.47	53,105.49	103,240	206,480	206,480	\$41.20	\$39.38
MISO_PENELEC-PENELEC_MISO	29-Jun-10	29-Jun-10	1	-	(41.47)	(41.47)	111.64	70.17	80	160	160	\$50.00	\$50.00
MISO_ROCKPORT-ROCKPORT_MISO	23-Jun-10	26-Jul-10	31	-	(22,416.84)	(22,416.84)	44,650.10	22,233.26	35,040	70,080	70,080	\$46.90	\$45.95
MISO_YUKON-YUKON_MISO	29-Jun-10	7-Jul-10	3	-	(257.68)	(257.68)	492.76	235.09	320	640	640	\$40.63	\$50.00
MTSTORM_MISO-MISO_GREEN	1-Feb-10	8-Jun-10	107	14,067.26	(175,447.39)	(161,380.13)	176,362.81	14,982.68	212,457	424,913	433,200	\$50.00	\$50.00
NYIS_LEONIA-LEONIA_NYIS	24-Jun-10	24-Jun-10	1	-	(15.47)	(15.47)	54.11	38.64	28	28	28	\$50.00	\$50.00
NYIS_MARION-MARION_NYIS	24-Jun-10	24-Jun-10	1	-	(30.93)	(30.93)	108.21	77.28	56	56	56	\$35.00	\$50.00
NYIS_PSEG-PSEG_NYIS	24-Jun-10	24-Jun-10	1	-	(47.11)	(47.11)	162.32	115.21	84	84	84	\$25.00	\$50.00
<b>Total</b>	<b>1-Feb-10</b>	<b>3-Aug-10</b>	<b>394</b>	<b>15,243.01</b>	<b>(458,629.94)</b>	<b>(443,386.93)</b>	<b>638,087.60</b>	<b>194,700.67</b>	<b>619,705</b>	<b>1,209,241</b>	<b>1,219,528</b>	<b>\$40.77</b>	<b>\$43.71</b>

Chen acquired more than 7 million MWh eligible to receive MLSA by reserving more than 14 million MWh of transmission that he associated with matched-pair transactions on behalf of Powhatan, resulting in almost \$5 million in losses from the price differential and transaction- and transmission reservation-related charges. These trades earned more than \$8.3 million in MLSA, however, for a net profit of approximately \$3.38 million:

POWHATAN ENERGY TRADES OF INTEREST													
UTC Path	Time Period			UTC Profits and Losses					Volumes			Average Bid Price	
	First Date	Last Date	Number of Days	LMP Differential (\$)	Transaction Costs (\$)	Profit or Loss w/o MLSA (\$)	MLSA (\$)	Total Profit or Loss with MLSA (\$)	MLSA-Eligible (MWh)	Up To Congestion (MWh)	Associated Transmission (MWh)	Leg 1	Leg 2
EBEND_MISO-MISO_MFORT7	29-May-10	21-Jun-10	22	(5,930.00)	(242,585.04)	(248,515.04)	328,455.56	79,940.52	348,000	696,000	696,000	\$25.00	\$35.00
MISO_AEP-AEP_MISO	2-Jun-10	20-Jun-10	19	-	(194,823.87)	(194,823.87)	284,886.34	90,062.46	283,200	566,400	566,400	\$35.00	\$25.00
MISO_APS-APS_MISO	29-Jun-10	29-Jun-10	1	-	(892.72)	(892.72)	2,232.89	1,340.17	1,600	3,200	3,200	\$50.00	\$50.00
MISO_COMED-COMED_MISO	2-Jun-10	3-Aug-10	63	-	(1,759,825.27)	(1,759,825.27)	2,979,175.91	1,219,350.64	2,502,600	5,005,200	5,005,200	\$43.37	\$40.16
MISO_COOK-COOK_MISO	19-Jun-10	3-Aug-10	46	-	(713,145.47)	(713,145.47)	1,350,735.60	637,590.13	1,113,600	2,227,200	2,246,400	\$45.82	\$45.70
MISO_DAY-DAY_MISO	1-Jun-10	3-Aug-10	64	-	(1,384,229.10)	(1,384,229.10)	2,446,789.49	1,062,560.39	2,064,800	4,129,600	4,129,600	\$40.95	\$39.47
MISO_PENELEC-PENELEC_MISO	29-Jun-10	29-Jun-10	1	-	(829.13)	(829.13)	2,232.89	1,403.76	1,600	3,200	3,200	\$50.00	\$50.00
MISO_ROCKPORT-ROCKPORT_MISO	23-Jun-10	26-Jul-10	31	-	(448,378.80)	(448,378.80)	891,852.90	443,474.10	699,468	1,401,600	1,398,936	\$48.48	\$47.23
MISO_YUKON-YUKON_MISO	29-Jun-10	7-Jul-10	3	-	(5,152.22)	(5,152.22)	9,855.29	4,703.08	6,400	12,800	12,800	\$40.63	\$50.00
MTSTORM_MISO-MISO_GREEN	29-May-10	8-Jun-10	4	(167,003.94)	(48,350.00)	(215,353.93)	48,518.58	(166,835.35)	62,328	124,656	124,800	\$50.00	\$50.00
NYIS_LEONIA-LEONIA_NYIS	24-Jun-10	24-Jun-10	1	-	(309.25)	(309.25)	1,082.13	772.88	560	560	560	\$50.00	\$50.00
NYIS_MARION-MARION_NYIS	24-Jun-10	24-Jun-10	1	-	(618.50)	(618.50)	2,164.26	1,545.77	1,120	1,120	1,120	\$35.00	\$50.00
NYIS_PSEG-PSEG_NYIS	24-Jun-10	24-Jun-10	1	-	(941.91)	(941.91)	3,246.40	2,304.48	1,680	1,680	1,680	\$25.00	\$50.00
<b>Total</b>	<b>29-May-10</b>	<b>3-Aug-10</b>	<b>257</b>	<b>(172,933.94)</b>	<b>(4,800,081.28)</b>	<b>(4,973,015.22)</b>	<b>8,351,228.25</b>	<b>3,378,213.03</b>	<b>7,086,956</b>	<b>14,173,216</b>	<b>14,189,896</b>	<b>\$41.48</b>	<b>\$44.81</b>

Chen acquired more than 1.3 million MWh eligible to receive MLSA by reserving almost 2.7 million MWh of transmission on behalf of CU Fund, which he associated with matched pair transactions that cumulatively lost more than \$730,000 from the price differential and costs related to scheduling the transaction and reserving transmission. But Chen received more than \$1.8 million in MLSA, for a net profit of over \$1.1 million (in less than two months of trading for CU Fund):

CU FUND TRADES OF INTEREST													
UTC Path	Time Period			UTC Profits and Losses					Volumes			Average Bid Price	
	First Date	Last Date	Number of Days	LMP Differential (\$)	Transaction Costs (\$)	Profit or Loss w/o MLSA (\$)	MLSA (\$)	Total Profit or Loss with MLSA (\$)	MLSA-Eligible (MWh)	Up To Congestion (MWh)	Associated Transmission (MWh)	Leg 1	Leg 2
EBEND_MISO-MISO_MFORT7	18-Jul-10	3-Aug-10	17	(1,706.00)	(25,710.09)	(27,416.09)	54,668.70	27,252.61	43,200	86,400	86,400	\$41.18	\$44.71
MISO_COMED-COMED_MISO	17-Jul-10	3-Aug-10	16	-	(299,727.76)	(299,727.76)	782,977.91	483,250.15	571,000	1,142,000	1,142,000	\$50.00	\$50.00
MISO_COOK-COOK_MISO	17-Jul-10	3-Aug-10	15	-	(84,650.67)	(84,650.67)	216,224.79	131,574.12	160,100	320,200	320,200	\$50.00	\$50.00
MISO_DAY-DAY_MISO	17-Jul-10	3-Aug-10	16	-	(319,191.18)	(319,191.18)	784,942.50	465,751.32	569,900	1,139,800	1,139,800	\$50.00	\$50.00
<b>Total</b>	<b>17-Jul-10</b>	<b>3-Aug-10</b>	<b>64</b>	<b>(1,706.00)</b>	<b>(729,279.70)</b>	<b>(730,985.70)</b>	<b>1,838,813.90</b>	<b>1,107,828.20</b>	<b>1,344,200</b>	<b>2,688,400</b>	<b>2,688,400</b>	<b>\$47.79</b>	<b>\$48.68</b>

Finally, although limited to the early months of 2010, Chen also employed the strategy on behalf of Huntrise Energy. He acquired over 820,000 MWh eligible to receive MLSA by reserving more than 1.5 million MWh of transmission that he associated with matched pair transactions, which cumulatively lost over \$620,000 from the price differential and also from charges related to transaction scheduling and transmission reservation. These trades earned over \$660,000 in MLSA, for a net profit of over \$42,000:

HUNTRISE FUND TRADES OF INTEREST													
UTC Path	Time Period			UTC Profits and Losses					Volumes			Average Bid Price	
	First Date	Last Date	Number of Days	LMP Differential (\$)	Transaction Costs (\$)	Profit or Loss w/o MLSA (\$)	MLSA (\$)	Total Profit or Loss with MLSA (\$)	MLSA-Eligible (MWh)	Up To Congestion (MWh)	Associated Transmission (MWh)	Leg 1	Leg 2
EBEND_MISO-MISO_MFORT7	1-Apr-10	22-Apr-10	7	532.00	(20,885.19)	(20,353.19)	21,830.11	1,476.92	27,000	54,000	54,000	\$25.00	\$35.00
EBEND_NYIS-NYIS_MFORT7	2-Mar-10	2-Mar-10	1	(280.00)	(13,261.03)	(13,541.03)	14,892.85	1,351.82	19,200	19,200	19,200	\$50.00	\$50.00
EBEND_OVEC-OVEC_MFORT7	3-Mar-10	13-Mar-10	9	(1,829.00)	(85,254.74)	(87,083.74)	78,862.05	(8,221.69)	100,800	100,800	100,800	\$25.00	\$25.00
MTSTORM_MISO-MISO_GREEN	1-Feb-10	2-May-10	81	60,975.00	(561,668.91)	(500,693.91)	548,352.07	47,658.16	673,200	1,346,400	1,380,000	\$50.00	\$50.00
<b>Total</b>	<b>1-Feb-10</b>	<b>2-May-10</b>	<b>98</b>	<b>59,398.00</b>	<b>(681,069.88)</b>	<b>(621,671.88)</b>	<b>663,937.09</b>	<b>42,265.21</b>	<b>820,200</b>	<b>1,520,400</b>	<b>1,554,000</b>	<b>\$37.50</b>	<b>\$40.00</b>

Thus, the trades of interest in this investigation involved almost 10 million MWh eligible to receive MLSA, resulting from over 18 million MWh of transmission reservations associated with over 19.5 million MWh of Up To Congestion transactions in a period of just six months. These trades incurred more than \$6.7 million in losses and costs. But these trades earned almost \$11.5 million in MLSA for a total net profit of over \$4.7 million.

In his defense, Chen has asserted to staff that he assumed market risk with these matched pair transactions because it was possible that one transaction of a UTC transaction pair might not clear. Chen asserts that he intended to place these trades such that in the event one transaction in a pair of UTC transactions would not clear, the other exposed transaction may diverge in a profitable direction – or could lose money. The trade data does not support this defense. Rather, the trade data shows that Chen scheduled these trades in a manner carefully conceived to ensure both legs of the UTC transaction pair would clear. In most instances, Chen entered the maximum possible bid in the DAM for each leg of the pair. PJM caps the bid for scheduling a UTC transaction at \$50 and -\$50, amounts well clear of the congestion price spread typical for the nodes that Chen used for this matched pair strategy. His bids were therefore designed to ensure they would be high enough to be picked up by PJM. Even when he did not enter bids of \$50, he nevertheless bid a number more than the largest historical DAM spread recorded for the node pair in question. Chen testified he had analyzed the historical data, and selected the nodes for the matched pair trades that historically had small spreads in order to make it more likely that his bids would clear the DAM. Chen's bids to schedule these matched pair UTC transactions on behalf of Powhatan and HEEP Fund and CU Fund

from June 1, 2010 through August 3, 2010 cleared the DAM 100% of the time. Chen's bids to schedule his matched UTC transactions in the period from March through May 2010 also cleared 100% of the time.

### **III. Staff Finds the Trading Activity to Be Manipulative**

#### **A. The Elements of 18 C.F.R. § 1c.2**

The Commission's prohibition against market manipulation in the electricity markets reads as follows:

It shall be unlawful for any entity, directly or indirectly, in connection with the purchase or sale of electric energy or the purchase or sale of transmission services subject to the jurisdiction of the Commission . . . to use or employ any device, scheme or artifice to defraud . . . or . . . to engage in any act, practice, or course of business that operates or would operate as a fraud or deceit upon any entity.<sup>12</sup>

The Commission will act on allegations of market manipulation where an entity (1) used a fraudulent device, scheme or artifice, or makes a material misrepresentation or engaged in any act, practice, or course or business that operates or would operate as a fraud or deceit upon any entity; (2) with the requisite scienter; and (3) in connection with the purchase or sale of electric energy or the transmission of electric energy subject to the jurisdiction of the Commission.<sup>13</sup> All three of these elements are required for an entity's conduct to violate the regulation.

#### **B. The Trades Establish a Fraudulent Scheme, Device or Artifice**

The Commission has stated that fraud is a question of fact and must be determined based on the particular circumstances of each case.<sup>14</sup> The Commission has also recognized that improper intent alone may transform what appears to be a legitimate market transaction into prohibited manipulation.<sup>15</sup> In addition, acting against one's own

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<sup>12</sup> 18 C.F.R. § 1c.2 (2009).

<sup>13</sup> *Prohibition of Energy Market Manipulation*, Order No. 670, 114 FERC ¶ 61,047 at P 49 (2006) (Order No. 670).

<sup>14</sup> *Id.* at P 60. *See also Superintendent of Ins. v. Bankers Life & Cas. Co.*, 404 U.S. 6, 11 n.7 (1971) (Rule 10b-5 prohibits all types of fraudulent schemes, and novel or unique forms of deception will not be immune because they are atypical (quoting *A. T. Brod & Co. v. Perlow*, 375 F.2d 393 (2d Cir. 1967))).

<sup>15</sup> *Brian Hunter*, 135 FERC ¶ 61,054, P 50 (2011) ("The difference between legitimate open-market transactions and illegal open-market transactions may be nothing

economic interest is an indicator of manipulative activity.<sup>16</sup> While Order No. 670 recognizes certain forms of manipulation that are well-established by case law, its list of examples is neither exhaustive nor exclusive. Case law finding manipulation under the SEC's similarly-worded Rule 10b-5 has recognized as manipulative the following transaction types: matched orders; trades meant to create the deceptive appearance of market activity; and any activity designed to create the appearance of substance or ability to generate real profit or loss where there is none.<sup>17</sup>

In *In re Amanat*,<sup>18</sup> the SEC, affirmed by the Third Circuit, determined that manipulation may exist under Regulation 10b-5 where trades are sham trades designed to avoid the effects of price changes due to market forces. *Amanat* involved a trader

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more than a trader's manipulative purpose for executing such transactions.”). *See also Markowski v. SEC*, 274 F.3d 525, 529 (D.C. Cir. 2001) (discussing Rule 10b-5 and Congress's underlying determination “that ‘manipulation’ can be illegal solely because of the actor's purpose”).

<sup>16</sup> *N.Y. Indep. Sys. Operator, Inc.*, 128 FERC ¶ 61,049, Attachment at 25 (2009) (“*NYISO*”) (“The market participants did not act against their economic interests or attempt to artificially affect price, which are hallmarks of market manipulation.”); *Graham v. SEC*, 222 F.3d 994,1005 (D.C. Cir. 1999) (“economically irrational trading was a large red flag”).

<sup>17</sup> *See, e.g., Ernst & Ernst v. Hochfelder*, 425 U.S. 185, 205 n.25 (1976) (“‘Wash’ sales are transactions involving no change in beneficial ownership. ‘Matched’ orders are orders for the purchase/sale of a security that are entered with the knowledge that orders of substantially the same size, at substantially the same time and price, have been or will be entered by the same or different persons for the sale/purchase of such security.”); *see also Graham v. SEC*, 222 F.3d 994, 999 (D.C. Cir. 1999) (defendant engaged in wash and matched trades to “creat[e] a deceptive appearance of market activity” and to “induce [brokerage firms] to pay him money they would not have paid had they known the sales were not bona fide”); *In Re Parmalat Secs. Litig.*, 376 F. Supp. 2d 472, 502 (S.D.N.Y. 2005) (“the sham companies were deceptive devices because they created an appearance of substance where substance was lacking”); *In Re Jett*, 82 S.E.C. Docket 1129, Admin. Proc. File No. 3-8919, 2004 WL 2809317, at \*14 (SEC March 5, 2004) (“Although merely a series of administrative conversions without economic substance that did not, in themselves, generate either a real profit or a real loss, they nonetheless would appear to be real purchases and sales to Kidder's computer system and would cause it to report a large, sustained trading profit.”).

<sup>18</sup> *In re Amanat*, 89 S.E.C. Docket 672, Admin. Proc. File No. 3-11813, 2006 WL 3199181, at \*1-7 (SEC Nov. 3, 2006), *aff'd mem. sub nom. Amanat v. SEC*, 269 Fed. Appx. 217 (3d Cir. 2008) (footnotes omitted).

seeking to capitalize on a program whereby NASDAQ, which collected money from a market data firm, paid a share of that money to market participants who surpassed a threshold volume of trading in a given time period. To increase the number of his trades and thereby meet the threshold and increase his share of the payments, Amanat conducted thousands of sham trades within a few days employing a computer program that automatically bought and sold the same securities within a very short time period. These trades netted to zero sales and zero share acquisitions, but NASDAQ paid Amanat based on the trade volume. The SEC held that Amanat had committed fraud within the meaning of Rule 10b-5 through this conduct.<sup>19</sup>

As in *Amanat*, Chen's matched-pair UTC transactions were designed to profit from volume by avoiding the effects of price changes in the market and instead profit through large volumes of MWhs eligible to receive a share of the MLSA. In *Amanat*, the trader received a monetary payment based on inauthentic trades without independent value. The SEC found deceptive conduct based on an implicit representation that the transactions were bona fide.<sup>20</sup> Amanat's trading is analogous to the matched-pair UTC transactions that were paired in order to "wash" returns or losses due to changes in the price spread of each UTC transaction in the pair. Chen implicitly signaled to the market he was making each trade for the sake of its potential profit from market price movements, but his real purpose was to insulate his trades from the effects of price changes and receive MLSA by scheduling a large volume of UTC transactions against a large transmission reservation.

In sum, staff concludes that the uneconomic UTC transactions scheduled by Chen – which are analogous to manipulative trading activity in securities and other regulated markets – violate the Commission's prohibition of market manipulation.

### **C. The Facts Demonstrate Scienter**

The facts show that Chen intended to engage in sham trades whose profits derived not from changes in market prices but from taking advantage of the MLSA. The Huntrise and Powhatan investors likewise understood that Chen's transactions were not placed to profit from price changes in the market, that the source of revenue came exclusively from the MLSA, and that Chen's success depended upon eliminating both profit and losses

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<sup>19</sup> *Amanat*, 2006 WL 3199181, at \*7-10.

<sup>20</sup> *Amanat*, 2006 WL 3199181, at \*7 (“[B]y generating thousands of wash trades and matched orders that [his employer] falsely reported to Nasdaq, Amanat misrepresented the number of legitimate trades [executed for the quarter]”). *See also Stoneridge Investment Partners v. Scientific-Atlanta, Inc.*, 552 U.S. 148, 158 (2008) (“If [the appellate court's] conclusion were read to suggest there must be a specific oral or written statement before there could be liability under § 10(b) or Rule 10b-5, it would be erroneous. Conduct itself can be deceptive, as respondents concede.”)

from changes in the price spread. With this understanding, they accepted the payments generated by the trades Chen placed on their behalf.

#### **D. The Conduct Occurred in a FERC Jurisdictional Market**

Trading activity within Commission-approved regional transmission organizations or independent system operators is jurisdictional. PJM is a Commission-approved RTO and ISO.<sup>21</sup>

#### **E. Defenses Offered to Staff in This Investigation Are Not Persuasive**

Staff has reviewed the legal and factual arguments submitted by counsel for Chen and for the Huntrise and Powhatan entities and investors. None of these asserted defenses have merit. This section is not meant to be an exhaustive response to every argument submitted by counsel. Rather, it provides staff's views only on the key defenses.

##### **1. Factual Defenses Are Not Relevant or Not Supported**

###### **a. Chen did not assume market risks.**

Defense counsel asserts that Chen's trades were legitimate because Chen intended that they profit from changes in price spreads resulting from market activity, consistent with the design of this particular type of transaction. These arguments are not supported by facts, and also ignore the contemporaneous evidence and deposition testimony that reveal Chen's intent to eliminate or reduce the effects of price changes in the market while capturing the MLSA.

As discussed above, Kevin Gates recalled in his deposition that Chen's trades on behalf of Powhatan were "very clearly trying to eliminate [the spread]," "to drive [] the day-ahead versus real-time [spreads] to zero and isolate the best to his ability to model the marginal loss credit" such that it "would exceed the fixed costs associated with fixed trade." Chen's deposition testimony confirms this. He testified that the purpose of the matched pair trades was to "reduce the spread risk" because they canceled out the positive and negative spread changes, and that he was not attempting to profit from spread changes between the DAM and RTM with these matched pair trades. In addition, he acknowledged that he did not trade identical matched-pair UTC transactions before the MLSA was available to him because doing so would not have been profitable.

Significantly, the assertion that Chen thought he was and intended to assume market risk through his matched-pair trades is belied by the volumes of his trading

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<sup>21</sup> PJM was previously established as an RTO by the Commission in an order issued December 20, 2002. *See* PJM Interconnection, L.L.C., *et al.*, 101 FERC ¶ 61,345 (2002) (establishing the initial boundaries of PJM).

activity. The number of trades and the MWh volumes increased by magnitudes as compared with trades he placed for HEEP Fund and Huntrise in 2008 and 2009 before he received MLSA. Given Chen's repeated description of himself in depositions as a "low-risk" trader, this dramatic increase in the number and volume of trades he scheduled once he commenced with the matched pair strategy shows that he regarded these trades as insulating him from market forces he could not control and that might cause him losses.

Neither the identical opposing matched-pair trades that Chen commenced in June 2010 nor the matched-pair trades he placed in the spring of 2010 were intended to capture the reward for assuming the "market risk" that is fundamental to non-manipulative UTC transactions. To the contrary, all of these trades were designed to circumvent that market risk while profiting from a credit unrelated to price differentials. That Chen could not precisely calculate in advance the amount he would receive in MLSA in a given hour is irrelevant to the analysis of whether these trades violated the Commission's anti-manipulation regulation. Moreover, Chen could and did calculate relative MLSA amounts for each hour with reasonable accuracy. In fact, throughout the period in which he employed his identical matched-pair strategy, over 80% of the hours in which Chen scheduled the matching UTC transactions and associated reserved transmission yielded a MLSA high enough to completely absorb transmission-related charges, market charges, and ancillary service charges related to those transactions.

Counsel also argues there was real "risk" that Chen's bids to schedule his UTC transactions would not be high enough to clear. But Chen could, and did, reduce the potential for non-clearing to almost zero by deliberately placing bids high enough to guarantee he would clear.<sup>22</sup> Ultimately, in the period June 2010 through August 3, 2010, 100% of Chen's bids to schedule the trades in question cleared.

Further, that Chen lost money on his UTC transactions due to unexpected congestion price divergence in the RTM on one isolated day at the end of May 2010 does not counter the overwhelming evidence that his trading scheme was based on avoiding market fundamentals. Moreover, Chen's own acknowledged belief is that a causal factor of the price divergence that produced these isolated losses was the very large volumes associated with Chen's own manipulative scheme. Again, this trading day does not support the conclusion that Chen was seeking to place trades based on capturing profits

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<sup>22</sup> It is not coincidental that none of Chen's identical opposing matched pairs failed to clear. Chen did an extensive, five-year analysis of UTC transactions before he created HEEP Fund. He had databases that allowed him to compare historical prices, on an hourly basis, at different nodes and also compare trading conditions by looking for "similar days" within the period he analyzed. He was thus able to choose bid prices for his matched pairs that were accepted by PJM in every instance. Whether his bid price was at the cap of \$50 or at some lesser price, it was always well above the actual clearing price.

from price changes; it instead supports the conclusion that Chen simply miscalculated how to best effectuate his scheme.

Chen's matched-pair trades, unlike other market participants' UTC transactions, sought to avoid the effects of market forces. Chen carefully matched volumes to ensure that changes in price spreads would net to a zero or near-zero sum. Chen assumed risk only to the extent that something could go wrong in execution of his scheme. He was not placing trades to capture price differentials in the market; instead, he sought to avoid the effect of price differentials.

- b. Assertions that Chen intended to assume market risk with a "home run" strategy are unsubstantiated.

Chen proffered a rationale for his trades that does not make sense as a practical matter and is undermined by the contemporaneous evidence of his intent.

The alleged trading strategy in question – which Chen's defense dubbed "hitting the home run" – purportedly used the MLSA as a mechanism to eliminate transaction costs. Assuming that Chen placed the same positive bid to schedule an import into PJM as he did on the matching export out of PJM at the same nodes, Chen could count on receiving money back if both legs cleared. The price differentials from each leg of the matched pair would net to zero dollars, but Chen would receive the MLSA less the transaction costs. Chen contends that his "home run" would occur if one leg failed to clear, leaving his other leg exposed, and the other leg's price spread change between the DAM and RTM yielded a dramatic profit. The strategy relies on the belief that the profitable spread change on the exposed leg happened rarely, such that Chen could not reasonably predict when a given UTC transaction would be profitable; he therefore purportedly used the matched pair transaction to consistently schedule and "wait" for the rare-but-profitable event.

The "home run" defense makes no sense. First, when both legs cleared, the profits and losses from the import and export canceled each other. For example, if the export leg had a rare moment of profitability, but both legs had cleared, Chen would not realize the benefit. Second, even if the import leg did not clear, the export leg was no more likely to profit wildly than to lose markedly. In other words, there was no reason to believe that, when Chen sought to schedule a matched pair but failed to clear his one leg because of DAM congestion prices, the price spread on the exposed leg would change in a profitable direction instead of result in a loss. In short, if he wanted to speculate on only the export transaction or import transaction, the scheduling of the matching leg did not improve his odds that the other leg would profit. It did, however, greatly reduce the odds that if one leg made a profit on the price differential, Chen would benefit – because more likely than not, both legs would have cleared and netted that profitable price differential to zero.

In any event, the contemporaneous evidence offers nothing that corroborates this proffered rationale. Nor is this rationale consistent with the "low risk, low reward"



strategy that Chen testified he applies to his trading. On the other hand, contemporaneous emails and trading records make clear that Chen ensured his bids to schedule would clear. And Chen admitted to staff that when placing the matched pairs, he wanted both legs to clear. Finally, Chen's identical, opposing matched trades never failed to clear.

## 2. Legal Defenses Are Unavailing

Chen and the Huntrise and Powhatan investors make several legal arguments that may be distilled to the following "themes": (1) the fact pattern does not fit with manipulation case law; (2) because the conduct did not violate a tariff or other rule, the conduct represents intent to take advantage of a market design issue rather than to manipulate; (3) this conduct is analogous to high frequency trading in the SEC-regulated markets, which the SEC permits; and (4) prosecuting this conduct is a violation of due process. These arguments are unpersuasive.

### a. Chen's scheme and intent fall within 10b-5 case law.

First, the law does not foreclose a finding of manipulation solely because Chen's trades were submitted openly to the PJM market. Although helpful to finding intent to deceive, active concealment of the scheme or artifice is not a necessary predicate to a finding of manipulation. In *Brian Hunter*, the Commission rejected Hunter's contention that "open market" trading could not constitute market manipulation.<sup>23</sup> Chen further argues that Chen's trades did not involve a misstatement or fraudulent act that misled other market participants. Chen's UTC transactions furthered the pretense of intending to profit from anticipated changes in the price spread based on supply and demand in the market. The trades injected false information into the market because, contrary to bona fide UTC transactions, Chen's trades intended to profit only from the MLSA.

Chen's attempts to distinguish his own conduct from the fact pattern in the *Amanat* decision also fail. Like *Amanat*, Chen sought a credit that was paid based on the volumes of his eligible MWhs, and his receipt of the same decreased the pro-rata share of the money that others would have earned.<sup>24</sup> Additionally, both *Amanat's* and Chen's trades injected false information into the market because neither conduct was motivated

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<sup>23</sup> *Brian Hunter*, 135 FERC ¶ 61,054, at P 48 (2011); see also *Barclays Bank PLC et al.*, Order Assessing Civil Penalties, 144 FERC ¶ 61,041, at PP 51-54 (2013).

<sup>24</sup> Not only did Chen's identical opposing matched trades increase his pro-rata share of the MLSA, but these transactions did not contribute to the pool in the way other transactions did. His matched pairs canceled out the price spread, including the line loss component, thereby eliminating the loss component of the spread that would have contributed to the MLSA pool.

by or aimed to capture price differentials. Neither Amanat nor Chen perceived his conduct to be manipulative, nor did either disclose his intent to the exchange or PJM.

- b. Conduct need not violate a tariff to qualify as impermissible manipulation.

Chen's position that his trades, because they did not directly violate a tariff, exposed a market design issue rather than manipulated the market rules is not persuasive. After discovery of the conduct, PJM immediately modified its tariff to prevent market participants from continuing to use the transaction as a vehicle to collect MLSA. The mere fact that the form of manipulation was not previously addressed by the tariff, and now it is, does not provide Chen any defense.<sup>25</sup>

- c. The SEC has not permitted analogous conduct in its markets.

Chen argues that matched-pair trades are analogous to high frequency trading designed to capture liquidity rebates in the SEC markets, and that the SEC has approved this conduct in its markets. In making this argument, counsel misreads the SEC guidance.<sup>26</sup> In an SEC Concept Release, the SEC encourages high frequency trading that captures slight price differentials in the market, and rebates for those trades, because it believes those trades create market liquidity. It simultaneously, however, questioned high frequency trading that does not – and is not intended to – capture any price differentials, but rather that seeks to place wash trades in order to generate volume to profit from the rebate alone. Neither the concept release, nor any other issuance by the SEC, has encouraged or otherwise endorsed high volume trading designed to capture rebates rather than price differentials. The SEC materials therefore do not offer support for Chen's trades.

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<sup>25</sup> Each of the Commission's major enforcement actions under Rule 1c (whether litigated or settled) has concerned, either in whole or in part, market manipulation in the absence of a violation of a specific tariff provision or comparable specific market rule. *See In re Make-Whole Payments and Related Bidding Strategies*, 144 FERC ¶ 61,068, at P 83 (2013); *see also In re PJM Up-To Congestion Transactions (Oceanside Power)*, 142 FERC ¶ 61,088 (2013); *Deutsche Bank Energy Trading, LLC*, 142 FERC ¶ 61,056 (2013); *Gila RiverPower, LLC*, 141 FERC ¶ 61,136 (2012); *Rumford Paper Co.*, 140 FERC ¶ 61,030 (2012); *Lincoln Paper and Tissue, LLC*, 140 FERC ¶ 61,031 (2012); *Competitive Energy Services, LLC*, 140 FERC ¶ 61,032 (2012); *Richard Silkman*, 140 FERC ¶ 61,033 (2012); *Constellation Energy Commodities Group, Inc.*, 138 FERC ¶ 61,168 (2012); *Brian Hunter*, 135 FERC ¶ 61,054 (2011); *Energy Transfer Partners, L.P.*, 128 FERC ¶ 61,269 (2009); *Amaranth Advisors, LLC*, 128 FERC ¶ 61,154 (2009).

<sup>26</sup> SEC Concept Release on Equity Market Structure, 75 Fed. Reg. 3594 (Jan. 21, 2010).

- d. Enforcing a violation of 1c.2 for this trading activity would not violate due process.

Chen and the principals of Huntrise and Powhatan assert they were not on reasonable notice of a potential violation and therefore enforcing a 1c.2 violation on these facts would constitute a violation of due process. Staff disagrees: in the complaint proceeding brought by Black Oak Energy, in which the Commission confirmed the basis for PJM's distribution of the MLSA, the Commission repeatedly stated it sought to avoid a market rule in which "arbitrageurs can profit from the volume of their trades."<sup>27</sup> The Commission also carefully explained that the MLSA is not a component of the market transaction or its profit or loss. PJM had to distribute the MLSA in a manner that would not interfere with the price of energy, and the Commission accepted that a rebate on the distinct transaction of paying the fixed costs of the transmission system satisfied that criteria.<sup>28</sup> When the Commission ultimately accepted that those engaging in UTC transactions could participate in the distribution of the MLSA, it nowhere suggested it would be proper to pay MLSA to those who collected based on volume of trades. Rather, the Commission consistently tied the payment of MLSA to the fixed costs of the transmission system.

The proceeding establishing the MLSA and its distribution gave Chen and other traders clear notice that (1) the ability to profit from the MLSA and the electricity market generally based on volume of trades was an inappropriate result the Commission was seeking to avoid; and (2) the purpose of the MLSA was to defray the costs of transmission for transmission users, not to create a distortion in market transactions.

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<sup>27</sup> *Black Oak Energy, LLC v. PJM Interconnection, L.L.C.*, Order Denying Complaint, 122 FERC ¶ 61,208 at P 51 (2008).

<sup>28</sup> *Black Oak Energy, LLC v. PJM Interconnection, L.L.C.*, Order Denying Rehearing in Part and Granting Rehearing in Part, 125 FERC ¶ 61,042 at P 36-38 (2008).

#### **IV. Conclusion**

The foregoing provides staff's preliminary findings that certain UTC trades by Chen on behalf of HEEP Fund, CU Fund, Huntrise and Powhatan constituted manipulative trading in the PJM market. Please submit in response to this letter any factual corrections, or additional facts or legal analysis not already submitted to staff, no later than September 13, 2013.

Sincerely,

(signed on original sent by U.S. Mail)

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