Speaker Materials

Wesley Allen
CEO, Red Wolf Energy Trading

On Behalf of
Financial Marketers Coalition

The Financial Marketers Coalition is an industry trade group made up of independent power marketing companies. The Coalition's members trade various financial products in a number of ISO/RTO markets, providing convergence, liquidity and competition. The Coalition's guiding principles include a fundamental belief in the value of open markets, with transparency, liquidity and fair market rules. We believe that markets operate more efficiently when the barriers to entry are low but appropriate, market rules are fair and transparent and transaction costs are based on cost causation principles. We believe that financial products bring needed liquidity, convergence and competition to ISO/RTO markets.

I. Types of Financial Products

Financial traders trade a variety of products in the various ISO/RTO markets. The names and types of products vary by market.

An **Inc** is an incremental ("inc") offer to sell energy in the day-ahead at a specific source, and a **Dec** is a decremental ("dec") bid to buy energy in the day-ahead market, at a specific sink. Incs and decs settle against the real-time Locational Marginal Price ("LMP"), and arbitrage the difference in energy and congestion prices between the Day-Ahead and Real-Time markets. Incs are only profitable when the Day-Ahead price is higher than the Real-Time price; and Decs are the reverse. Incs and Decs are primarily an energy product.

The **Up-To Congestion** ("UTC") product in PJM, and **Point to Point** product in ERCOT, as well as the **Virtual Spread Bid** or Real Time Congestion Hedge product under development in MISO, are all hourly congestion (transmission) products. These products take a position on the price separation between two points. They are a transmission product because they represent the value of congestion between two points on the transmission system. In the predominant flow direction, they are profitable when real-time congestion is greater than day-ahead congestion.

Although **FTRs** are a financial product, they do not impact unit commitment and dispatch. As such, they are ordinarily not a part of discussions regarding uplift. However, similar to the hourly congestion products, they allow a market participant to take a financial position on the cost of congestion between two specified points.

Table 1: Financial Products Available in the ISO/RTO Markets

ISO	Energy Products	Congestion Products		Netting	Admin Fees $/MW	Real Time Uplift	Avg uplift $/MW 2013
		Hourly	Long-term				
ERCOT	Yes, called DAM Energy Offer/Bid	Yes, called PTP	Yes, CRR	Yes	$0.14	Hourly Net short	$0.01 for DA uplift
NYISO	Yes, Zonal	No	Yes, TCC	N/A	$0.10	N/A	N/A
CAISO	Yes, called convergence bidding	No	Yes, CRR	Yes	$0.083	Hourly Net short	$0.26 (FMM)
MISO	Yes, incs/decs	Virtual Spread bid under development	Yes, FTR	Yes	$0.075	DDC: Hourly Net Short	$1.00 (DDC)
				(Market Wide)		CMC: Hourly Net Flows	$0.02 (CMC)
PJM	Yes, incs/decs	Yes, UTC	Yes, FTR	Yes for Physical	$0.045	Daily Rate	$3.28 (East)
				No for Financial			$1.65 (West)
SPP	Yes, incs/decs	No	Yes, FTR	No	$0.05	Daily Rate	$1.73 (2014 YTD)
ISO-NE	Yes, incs/decs	No	Yes, FTR	No	Not known	Daily Rate	$2.95

Incs/Decs in ISO-NE have negligible trading volume due to high allocation of uplift. Dr. Patton has been trying to change the allocation methodology so that virtual volume returns,[1] but as yet has been unsuccessful.

In a recent report on financial products, PJM described financial products, or virtual transactions, as follows:

> Virtual Transactions are transactions that are used to both arbitrage price differences between the Day-Ahead and Real-Time Energy Markets and also to hedge financial exposure from physical positions. The transactions are called virtual because the Market Participant submitting a transaction that clears takes a financial position in the Day-Ahead Energy Market by agreeing to buy or sell energy at a specific location or locations that it then liquidates in the Real-Time Market. This occurs because the energy that is bought or sold in the Day-Ahead Energy Market is not provided in real-time and therefore creates an imbalance. The PJM two-settlement system settles all quantity (MW) deviations from the Day-Ahead Energy Market at the real-time spot price. Thus, Virtual Transactions can arbitrage price differences between the two markets.[2]

To be clear, the Day-Ahead market is financial for all market participants and all product types since the commitments made in the Day-Ahead market are all financial. Note that both energy and transmission congestion products are available as virtual transactions in the Day-Ahead market. Although both energy and transmission are needed for a well functioning electricity market, energy products are very different from transmission products, and have different impacts on uplift. The Day-Ahead LMP is composed of three elements: congestion, losses and energy. Congestion and losses account for approximately 5% on average, while energy comprises the remaining 95% on average. Since transmission positions, taken through products such as PJM's UTC or ERCOT's P2P, represent only the congestion and losses portions of LMP, there should never be an energy deviation or energy uplift charged to transmission products because there is no energy component.

II. Benefits that Financial Products Bring to the Markets

Financial products bring multiple benefits to ISO/RTO markets, including:

- Convergence of Day Ahead and Real Time prices, helping to reduce uplift
  - If a transaction converges the market, it is profitable
  - If a transactions causes divergence, it is unprofitable

---

[1] Patton, D., 2012 Assessment of the ISO New England Electricity Markets at 17 (May 2013) ("ISO-NE 2012 SOM"), *available at* http://www.iso-ne.com/static-assets/documents/markets/mktmonmit/rpts/ind_mkt_advsr/isone_2012_emm_rprt_final.pdf

[2] *PJM Interconnection, LLC*, Report on the Impact of Virtual Transactions at 1, Docket No. ER13-1654-000 (filed Feb. 7, 2014) ("PJM Virtual Transaction Report").

Table 2: Price Convergence in PJM[3]

Price Convergence Statistics – Total LMP

UTCs appear to be beneficial in contributing to Day-ahead vs Real-time price convergence

Date	RT – DA (w/ UTCs) ($/MWh)	RT – DA (w/o UTCs) ($/MWh)	Improvement with UTCs included ($/MWh)
May 2, 2013	3.81	4.43	0.62
May 4, 2013	0.65	1.06	0.41
May 22, 2013	6.10	6.35	0.25
May 23, 2013	0.71	-2.14	1.43
May 27, 2013	-4.51	-4.24	-0.27

- Liquidity in the markets
- Lower risk and occurrence of market power
- Competition lowers cost to consumers.

These benefits have been outlined in a number of sources at a higher level. Dr. William Hogan performed a study in 2012,[4] whereby he noted:

> The advantages of including these financial transactions in forward auctions are clear. The transactions can reflect the real limits of the grid, with all strong and complex interactions. This expands the set of feasible transactions and should **both increase efficiency and reduce risk**. …
>
> From this perspective, limitations on virtual bids and financial transactions work in the wrong direction. Expanded liquidity and ease of entry would improve the

[3] Analysis of Up-To Congestion Transactions at16, PJM Members Committee webinar (June 24, 2013), *available at* http://www.pjm.com/~/media/committees-groups/committees/mc/20130624-webinar/20130624-item-02-utc-transaction-analysis.ashx

[4] Hogan, W., *Electricity Market Design: Financial Transmission Rights, Up To Congestion Transactions and Multi-Settlement Systems* (July 16, 2012) ("2012 Hogan Study"), *available at* http://www.hks.harvard.edu/fs/whogan/Hogan_UTC_071612.pdf and posted as a non-decisional item in Docket No. EL12-8-000 (Sept. 18, 2012).

> operation of the market and create a closer approximation of the idealized competitive day-ahead market. Given the benefits of coordinated markets and expanded opportunities for hedging, limitations on financial bids should be avoided or at least face a strong burden of justification.[5]

Similarly, Dr. Patton, the market monitor for several ISO/RTOs has argued for increased virtual bidding in MISO, including recommending the development of the virtual spread bid or real-time congestion hedge product,[6] because of the value that such trading brings to the market:

> active virtual trading in the day-ahead market promotes price convergence with the real-time market, which facilitates an efficient commitment of generating resources. In addition, active virtual supply protects the market against attempts to raise day-ahead prices by economically withholding physical generation or making excess load or virtual load purchases.[7]

Dr. Patton has further argued for the development of a virtual spread bid product (an hourly financial transmission transaction), similar to the PJM UTC, setting it out as a recommendation in his State of the Market Reports for several years in a row:

> 2012-5: Introduce a virtual spread product.
>
> Over two-thirds of price-insensitive volumes (and 21 percent of all volumes) in 2013 were "matched" transactions. To the extent that the matched transactions are attempting to arbitrage congestion-related price differences, a virtual product to allow participants to do this price sensitively would be more effective and efficient. Participants using such a spread product would specify the maximum congestion difference between two points they are willing to pay (i.e., schedule a transaction). This would prevent the participant from engaging in transactions that are highly unprofitable for the participant and produce excess day-ahead congestion that can cause inefficient resource commitments.[8]

Two noted Stanford economists, Akshaya Jhu and Frank Wolak, recently examined the impacts of convergence bidding on the CAISO markets and found that:

> … the introduction of explicit virtual bidding significantly reduced the transactions costs associated with attempting to profit from differences between the day-ahead and real-time market prices at the same location in the transmission network. In addition, **these results demonstrate economically significant economic and global environmental benefits associated with the introduction of convergence bidding**.

---

[5] *Id.* at 7 (emphasis added).

[6] *See, e.g.*, 2012 State of the Markets Report for the MISO Electricity Markets at 25 (June 2013).

[7] 2008 State of the Market Report for the Midwest ISO at 41.

[8] 2013 State of the Markets Report for the MISO Electricity Markets at 76 (June 2014).

> Although it was possible to implicit virtual bid before the introduction of explicit virtual bidding, the evidence from our analysis is that the introduction of this product significantly improved the degree of price convergence between the day-ahead and real-time markets and reduced the cost of serving load in the California ISO control area... [9]

Drs. Wolak and Jhu also sought to quantify the benefits of convergence bidding to CAISO's ratepayers, as well as the impacts of convergence bidding on fossil fuel usage. They found:

> The annual total cost of fossil fuel energy is $2.8 billion the year before convergence bidding and $2.2 billion the year after convergence bidding. Applying the 2.6 percent reduction to these figures **implies an annual cost savings for the variable cost of fossil fuel energy of roughly 70 million dollars per year**. Applying the total MMBTU figures, implies that the introduction of **convergence bidding reduced the greenhouse gas emissions from fossil fuel generation in California by 2.8 percent**. The average heat rate of fossil fuel units in California is approximately 9 MMBTU/MWh and the typical natural gas-fired generation unit produces approximately a half of a ton of carbon dioxide per MWh of energy produced. In the year before explicit virtual bidding, 585 million MMBTUs were consumed to produce electricity and the year after 484 million MMBTUs were consumed. Applying our 2.8 percent reduction figure to these two numbers implies that the introduction of explicit virtual bidding reduced carbon dioxide emissions by between 650,000 and 537,000 tons annually. Both of these results point to sizable economic and environmental benefits from the introduction of explicit virtual bidding in California.[10]

In the white paper issued in advance of this technical conference, FERC staff noted that: "Uplift payments are closely related to price divergences between day-ahead and real-time markets." As noted above, virtual trading helps <u>decrease</u> price divergence – which therefore helps to decrease uplift costs. The reverse is also true: lower amounts of virtual trading can lead to higher uplift costs. Dr. Patton specifically made this point in noting the need to increase virtual trading in ISO-NE: "Since real-time NCPC charges are allocated across virtual transactions and other Real-Time Deviations, the reduced volume of nodal virtual trading has resulted in higher NCPC charges to the remaining real-time deviations since May 2010."[11]

In the last year, PJM has filed two studies with the Commission, in Docket No. ER13-1654-000, analyzing the impact of incs/decs and UTCs on unit commitment and dispatch, as well as their

---

[9] Jha, A and Wolak, F, *Testing for Market Efficiency with Transaction Costs: An Application to Convergence Bidding in Wholesale Electricity Markets* at 23 (May 7, 2013) (emphasis added), *available at* http://web.stanford.edu/group/fwolak/cgi-bin/sites/default/files/files/CAISO_VB_draft_V8.pdf

[10] *Id.* (emphasis added).

[11] 2012 ISO-NE SOM at 16.

uplift allocations. PJM described the benefits that financial products bring to the markets as follows:

> The benefit of Virtual Transactions like INCs, DECs and UTCs is to provide price convergence between the Day-Ahead and Real-Time Energy Markets. Any pricing point on the system where the prices are different between the Day-Ahead and Real-Time Energy Markets provides an opportunity to make revenues using a Virtual Transaction. If the day-ahead price is higher than the real-time price, a Market Participant would want to submit an INC offer to sell energy at the high day ahead price and then buy out of that position at the lower real-time price. If the real-time price is higher, a DEC bid would be profitable. For price spreads between points, UTCs are used. Virtual Transactions can also be used to hedge physical positions in the Day-Ahead Energy Market in order to manage exposure to realtime prices. Virtual Transactions are regularly utilized by all types of PJM Market Participants for both purposes.[12]

III. Impacts of Uplift on Financial Products

Financial products are particularly susceptible to fee allocations, including uplift, for a variety of reasons, including that they are discretionary products which operate on very small profit margins.

[12] PJM Virtual Transaction Report at 1.

Table 3: Profitability of Financial Transactions in PJM[13]

UTC vs. Inc / Dec – Gross Profit Per Day Comparison
May 1, 2012 – April 30, 2013

	UTC (Gross)	Inc/Dec (Gross)	Delta (Inc/Dec – UTC)
Total Cleared (MWh)	367,504,399.6	122,297,775.7	-245,206,623.9
Average Daily Profit ($/day)	$364,140.22	$188,806.49	-$175,333.73
Avg Profit/Cleared MWh ($/MWh)	$0.3617	$0.5635	$0.2018
Standard Deviation of Daily Gross Profit	$681,288.4627	$1,356,355.721	$675,067.2585
% of Days Where Bid Type Has Negative Gross Profit	28.8%	51.5%	22.7%

As this chart demonstrates, the average gross profit, prior to administrative fees, of UTCs was around $0.36/MW, $0.56 for incs, and $0.20 for decs. However, this chart does not reflect actual uplift costs, which during the relevant period of May 1, 2012 to April 30, 2013 averaged:[14]

Day-Ahead Operating Reserves: $0.17/MW

Real-Time Operating Reserves: $2.08/MW

East Real-Time Adder: $1.65/MW

West Real-Time Adder: $0.12/MW

Total estimated hourly charges for transaction in Eastern PJM: $3.90

Total estimated hourly charges for transaction in Western PJM: $2.37

$0.56 average inc/dec profit - $3.13 (blended uplift charge) == ($2.58/MW loss)

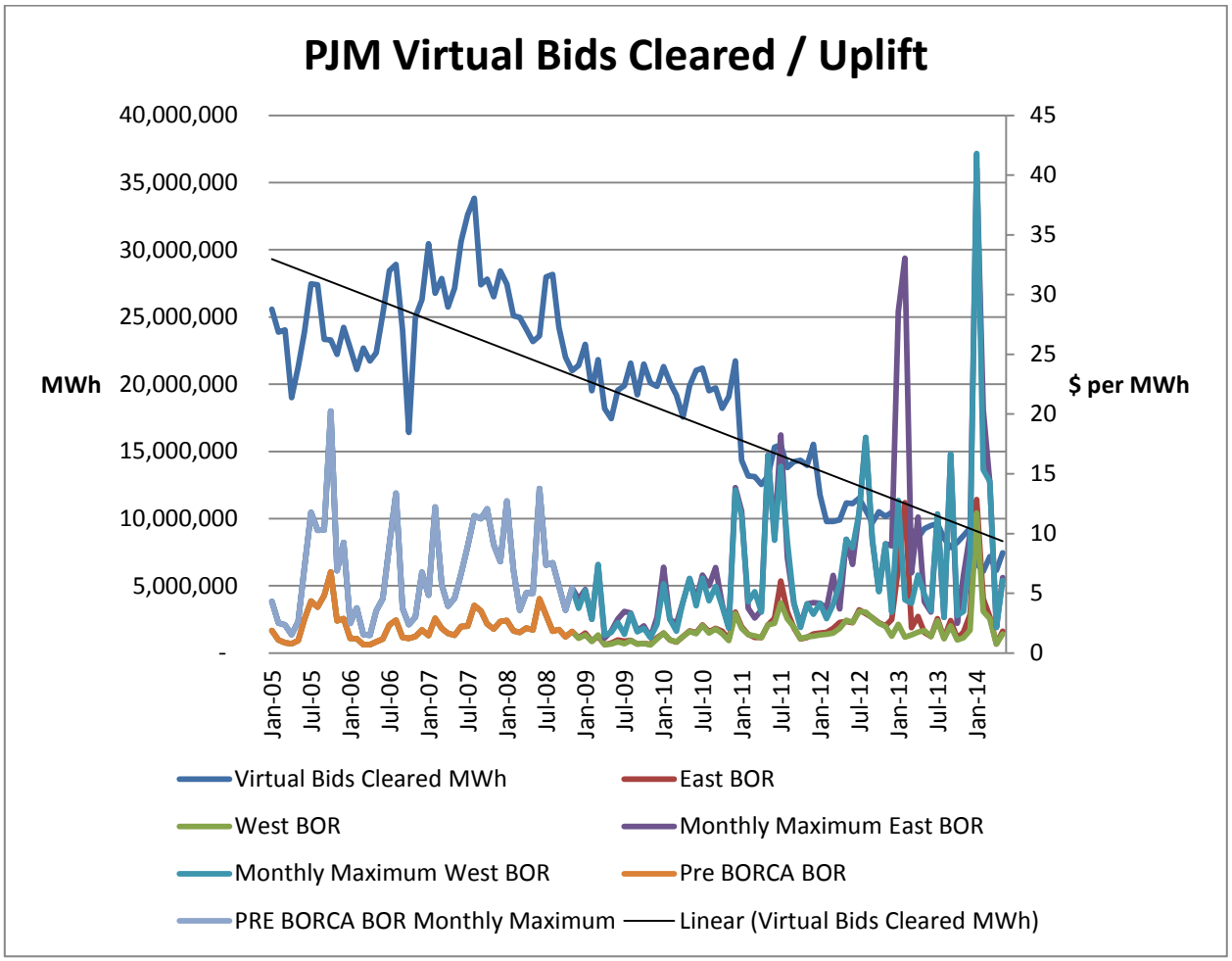
Uplift costs therefore can rapidly eviscerate any profit, thus rendering the product nonviable from a trading perspective. By impacting the profitability of financial products, uplift fees can profoundly impact the volumes of virtual transactions.

---

[13] Analysis of Up-To Congestion Transactions at 12, PJM Members Committee webinar (June 24, 2013), *available at* http://www.pjm.com/~/media/committees-groups/committees/mc/20130624-webinar/20130624-item-02-utc-transaction-analysis.ashx

[14] Note that the time frame referenced in this table differs from the time frame in Table 1.

Table 4: Impact of Uplift on Volumes of Virtual Transactions in PJM[15]



In a recent report, Dr Hogan analyzed the impacts of uplift on financial transactions and found that "[the] benefits of coordinating financial contracts would be threatened by any increase in transaction costs or allocation of residual costs to the financial contracts."[16] This finding has been supported in the MISO Revenue Sufficiency Guarantee ("RSG") and ISO-NE uplift contexts. PJM is currently exploring its uplift allocation methodology. Given that the convergence that virtual transactions help bring to the markets can, in fact, reduce uplift, the allocation to virtual transactions of high uplift fees can create a death spiral of sorts, where allocation of uplift fees results in reduced transaction volumes, meaning that the full uplift amount was not recovered, requiring an increase in the uplift charge … and resulting in even lower volumes of virtual transactions.

---

[15] This chart was prepared by the Financial Marketers Coalition utilizing PJM's data.

[16] 2012 Hogan Study at 11.

We note that netting of virtual transactions, as done by MISO, ERCOT and CAISO, has the potential of significantly reducing the impacts of uplift on virtual transactions. By allowing virtual transactions to net market-wide, the ISO minimizes the impact of those virtual transactions on unit commitment,[17]

MISO

MISO underwent an extensive process starting in 2005 to revise its RSG uplift allocation methodology. MISO initially did not propose allocating RSG charges to virtuals; however, the Commission directed MISO to do so..[18] The impacts on virtual volumes, as demonstrated on the following chart, were significant. Virtual transaction volumes dropped as the RSG charge was applied to virtual transactions (incs/decs) in MISO, and virtual volumes have only begun rebounding in the past year or two, as the MISO RSG charge was revamped.

As part of revamping the RSG charge, MISO performed a study to determine the cost causality of various market participants to the RSG charge. It found:

Not all factors contribute equally to RSG MWP [Make Whole Payment].

- Load contributes approximately 23% of RSG MWP over the whole period.
- Generators contribute approximately 39% to RSG MWP over the whole period.
- Changes in NSI contribute approximately 30% to RSG MWP over the entire period.
- **Virtual supply contributes approximately 1.3%.**
- Factors outside MPs control contribute the remainder.[19]

As such, although virtual transactions admittedly had a very low percentage of contribution to the RSG charge, the initial allocation of the full amount of the RSG charge to those transactions had a profound, negative impact on volumes.

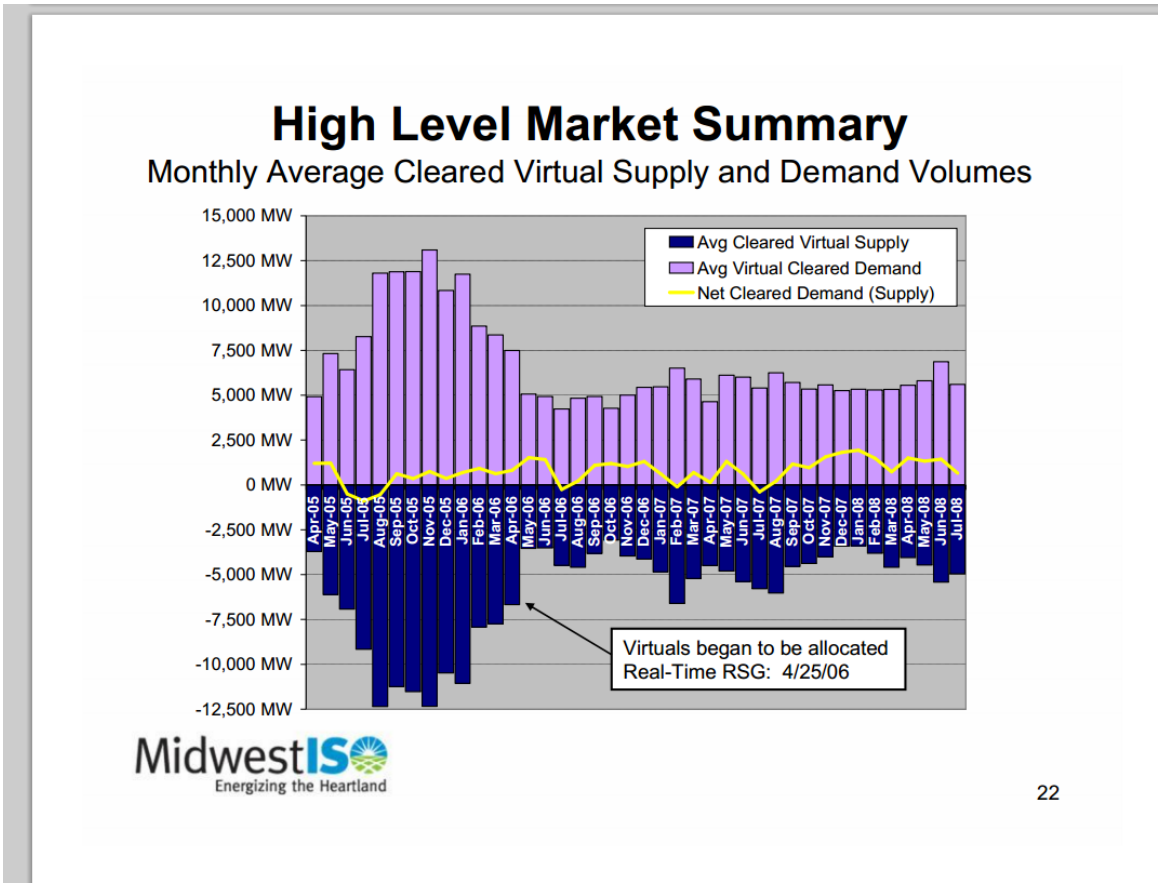
---

[17] *Cal. Indep. Sys. Oper. Corp.*, 133 FERC ¶ 61,039 at P 60 (2010).

[18] We will not repeat the fairly extensive history of the MISO RSG proceeding here; however, it is well-documented in several Commission orders in Docket Nos. ER04-691, EL07-86 and other related dockets. *See, e.g., Midwest Indep. Transmission Sys. Operator, Inc.*, 115 FERC ¶ 61,108 (Initial Order), order on reh'g, 117 FERC ¶ 61,113 (2006) (First Rehearing Order), order on reh'g, 118 FERC ¶ 61,212 (Second Rehearing Order), order on reh'g, 121 FERC ¶ 61,131 (2007) (Third Rehearing Order).

[19] Greening, L., Econometric Analysis of RSG at the Midwest ISO at 19 (June 9, 2009) ("MISO RSG Analysis"), *available at* https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/RSGTF/2009/20090708/20090708%20RSGTF%20Item%2004%20DC%20Energy_Economic%20Analysis%20of%20RSG.pdf.

Table 5: MISO Cleared Virtual Volumes, 2005-2008[20]



ISO-NE

In ISO-NE, the uplift allocation is called the Net Commitment Period Compensation ("NCPC"). The volume of virtual transactions in ISO-NE has been low, with minimal participation from financial market participants, for a variety of reasons, including the volatility of the NCPC charge. ISO-NE's market monitor explains:

> The substantial drop in virtual transactions at the nodal level began in May 2010 when the ISO deployed a software solution to address an inconsistency in loss modeling at certain locations. This modeling inconsistency had motivated a significant quantity of virtual trading at the affected locations where such trades produced low levels of consistent virtual profits (due to predictable differences between day-ahead and real-time LMPs). Hence, when this inconsistency was remedied, the associated virtual trading at those nodes ceased. More recently, FERC enforcement actions against virtual traders in a number of markets have likely

---

[20] Virtual Transactions in the Midwest ISO Market at 22 (July 23, 2008), *available at* http://www.caiso.com/Documents/Presentation-VirtualTransactionsinMidwestISOMarkets.pdf.

> increased the perceived regulatory risks associated with virtual trading and contributed to the reduction in activity. Finally, the rising NCPC rates have likely also contributed to this reduction, which is described below.[21]
>
> …
>
> Since real-time NCPC charges are allocated across virtual transactions and other Real-Time Deviations, the reduced volume of nodal virtual trading has resulted in higher NCPC charges to the remaining real-time deviations since May 2010. **The real-time NCPC rate increased substantially from $0.46 per MWh in the first four months of 2010 to $3.60 per MWh in the last eight months of 2010.** The rate has remained high, averaging roughly $2 per MWh in 2011 and 2012. Additionally, supplemental commitment for system-wide reliability has increased in recent years, contributing to elevated NCPC rates as well. **High NCPC rates provide a significant disincentive for firms to schedule virtual transactions because virtual profits tend to be relatively low.** Hence, it is likely that the increased NCPC rates have reduced contributed to the reduction in virtual trading activity and, ultimately the consistency between day-ahead and real-time prices.[22]

In 2013, the ISO-NE internal market monitor noted that virtual transaction volumes have significantly decreased, most likely due to "the effect of high and uncertain transaction costs."[23]

ISO-NE is in the midst of a redesign of its uplift concept, slated to become effective at the end of this year. Hopefully, this redesign will include proper incentives to allow virtual transactions to become vibrant in the ISO-NE market again.

---

[21] ISO-NE 2012 SOM at 15.

[22] ISO-NE 2012 SOM at 16 (emphasis added).

[23] ISO-NE 2013 Annual Markets Report at 77 (May 6, 2014).

Table 6: ISO-NE Demand 2011-2013[24]

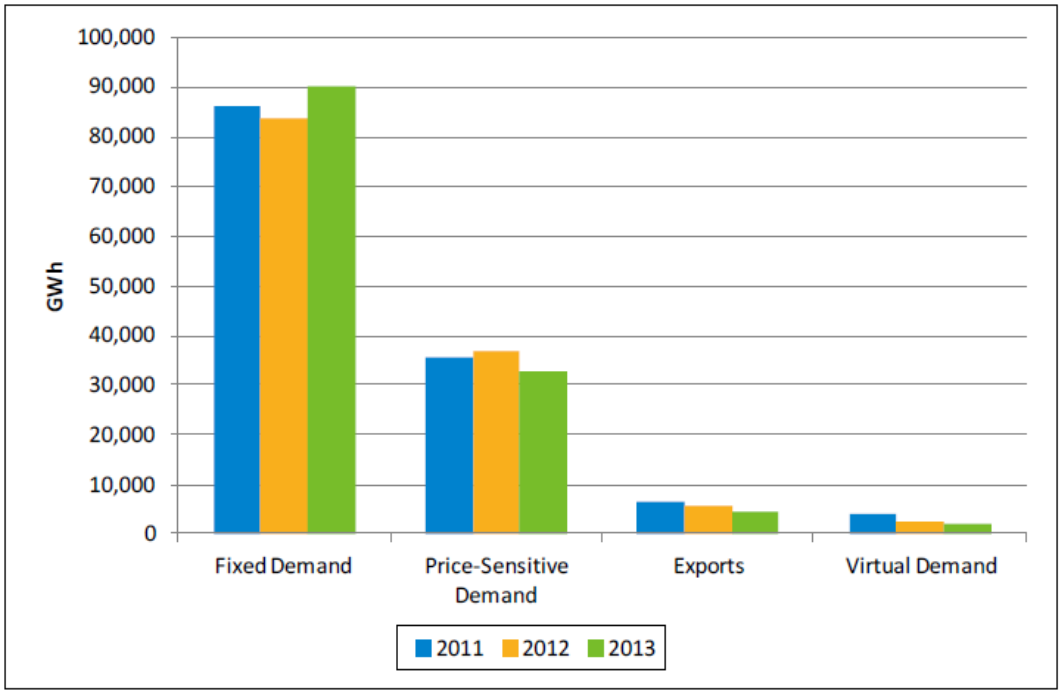
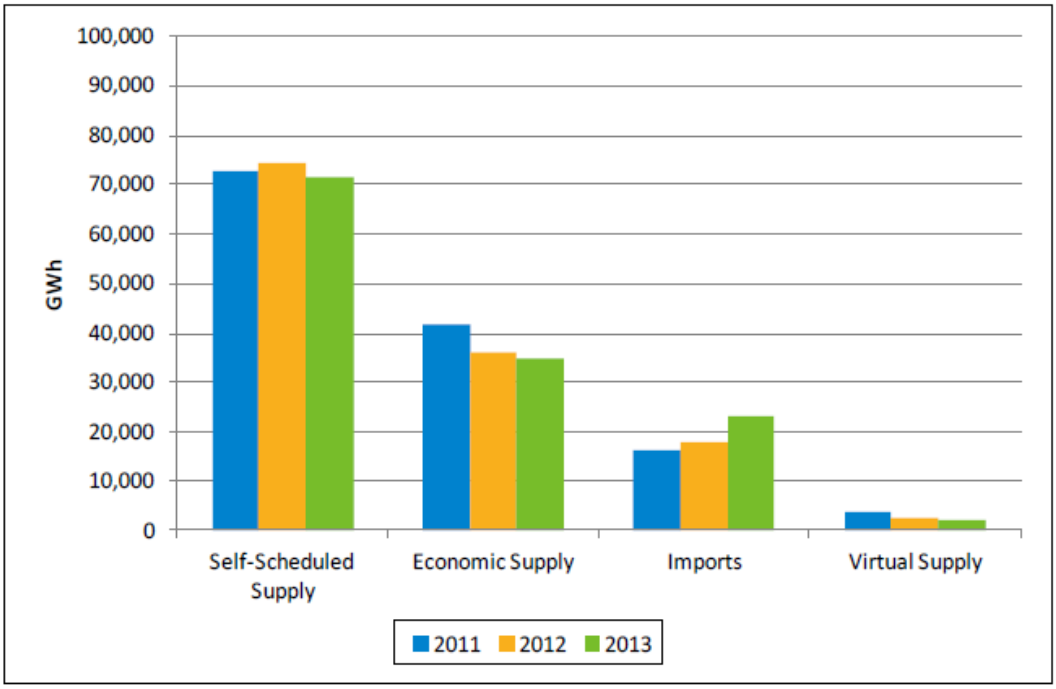


Table 7: ISO-NE Supply 2011-2013[25]



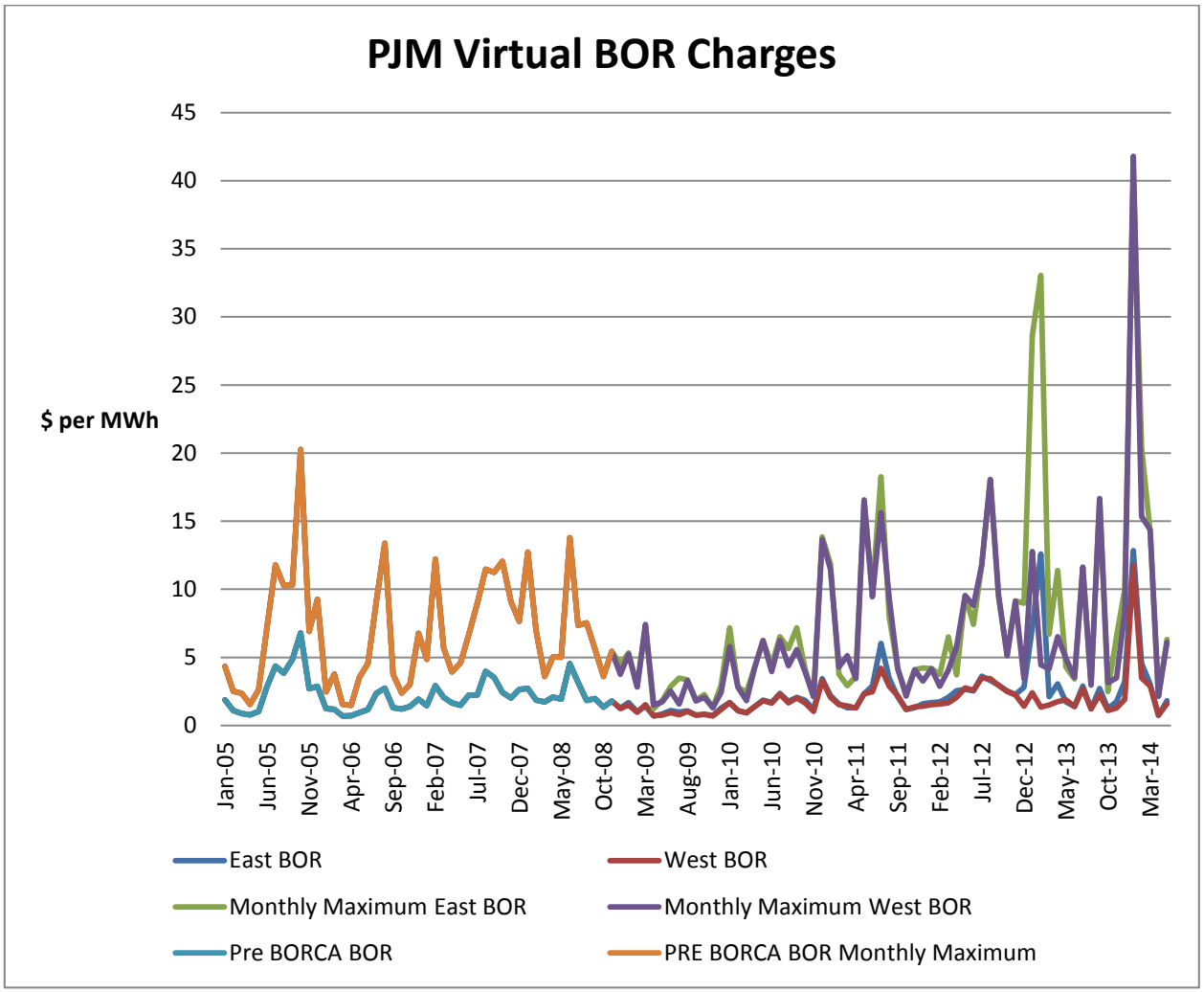
[24] ISO-NE 2013 Annual Markets Report at 75.

[25] *Id.* at 78.

PJM

PJM is also in the process of revamping its uplift, or Balancing Operating Reserve, ("BOR"), calculation and allocation. To date, the BOR charge has been both volatile and high, rendering certain virtual transactions (incs and decs) almost non-viable given the unpredictability of the charge. Since UTCs are a transmission product, they have been exempt from the BOR charge; as such, they have remained a viable form of financial trading in PJM.

Table 8: BOR Charges in PJM[26]



The Energy Market Uplift Senior Task Force ("EMU") has been working on the issue for the past year and is slowly drawing to a close. We remain very concerned that any proposal coming out of this stakeholder process must be based on cost causation principles and not eviscerate financial trading by applying an unsubstantiated arbitrary fee which would render such trading unprofitable.

---

[26] This chart was prepared by the Financial Marketers Coalition utilizing PJM's data.

We have seen the application of high uplift fees in other ISO/RTOs, particularly MISO and ISO-NE, drive financial trading of virtual products into the ground, and hope that PJM learns from, rather than repeats, these experiences.

IV. Uplift Allocations Must Reflect Cost Causation

In determining appropriate uplift allocations, ISO/RTOs, their stakeholders and FERC must take cost causation into account. Courts have repeatedly ruled, in the transmission cost allocation context, that the Commission must perform some amount of cost causation analysis in allocating significant costs to consumers.[27] Similarly, cost causation analysis cannot be omitted in the uplift context. Additionally, repeated studies have shown that virtual transactions do not cause uplift, or contribute to it in only minute amounts. As part of revamping the RSG charge, MISO performed a study to determine the cost causality of various market participants to the RSG charge. It found:

> Not all factors contribute equally to RSG MWP.
>
> - Load contributes approximately 23% of RSG MWP over the whole period.
> - Generators contribute approximately 39% to RSG MWP over the whole period.
> - Changes in NSI contribute approximately 30% to RSG MWP over the entire period.
> - **Virtual supply contributes approximately 1.3%.**
> - Factors outside MPs control contribute the remainder.[28]

Similarly, Dr. Patton has argued, in the ISO-NE context, that the NCPC charge should be allocated based on cost causation principles: "we recommend that the ISO modify allocation of Economic NCPC charges to be more consistent with a 'cost causation' principle, which would generally involve not allocating NCPC costs to virtual load and other real-time deviations that cannot reasonably be argued to cause real-time economic NCPC."[29]

The current structure of the MISO RSG charge reflects this cost causation principle: virtual transactions are charged a fee proportionate to the amount they contribute to uplift based on the mathematics of the system.[30] We strongly encourage both the Commission and the other ISO/RTOs to carefully review the MISO model since of all of the ISO/RTOs, it most closely adheres to cost causation principles when allocating uplift.

---

[27] *See Illinois Commerce Comm'n v. FERC*, 576 F.3d 470 (7th Cir. 2009); *further order on remand*, Nos. 13–1674 *et al.* (decided June 25, 2014).

[28] MISO RSG Analysis at 19. "MWP" stands for Make-Whole Payment.

[29] ISO-NE 2012 SOM at 17.

[30] Note that MISO's RSG charge consists of two components: the Day-ahead Deviation and headroom Charge ("DDC") which is an energy charge and the Congestion Management Charge ("CMC") which is a transmission charge. The CMC applies to all transactions and is relatively low (approximately $0.02/MW, see Table 1). The DDC is applied to transactions <u>after</u> they are netted market-wide, and only applies to market participants who are net short. Those who are either flat or hold long positions are not subjected to the DDC that hour.

V. Expansion of Financial Products May Help Reduce Uplift

As argued by Dr. Patton in the MISO State of the Market Reports,[31] the hourly congestion product is one of the most effective ways to model Day-Ahead congestion in the ISO/RTO markets and to help the transmission system operators commit the proper resources more effectively in the Day-Ahead market thereby reducing uplift in the Real-Time markets. PJM has established the UTC product a number of years ago; MISO is developing the virtual spread bid product; and ERCOT offers the Point-to-Point ("P2P") product. Development of a similar product in the various ISO/RTO markets will help with convergence, liquidity and reduction of uplift. We therefore ask the Commission to encourage the ISO/RTOs to establish a hourly congestion product at all LMP points or nodes within the markets. Increased financial trading with an expanded set of virtual transactions can help reduce uplift between the Day-Ahead and Real-Time markets.

VI. Conclusion

In summary, the Commission must ensure that energy uplift allocations do not eviscerate financial trading which bring significant benefits to the ISO/RTO markets, and thereby, reductions of the cost of wholesale power. As detailed in the Wolak study,[32] in the first year of convergence bidding in CAISO (albeit with limited volumes given the smaller size of the CAISO market), the wholesale cost of electricity was reduced by the upper tens of millions of dollars.

In our view, uplift allocation must be based on cost causation principles, reflecting a fair and proportionate allocation to the market participants and transactions which cause uplift, as well as potential crediting to those market participants and transactions which reduce uplift. We applaud MISO's efforts to restructure the RSG charge: after years of debate and rehearings, the MISO uplift construct is finally just and reasonable, and based on cost causation principles. We also recognize MISO's efforts with eLMP. As previously noted, we firmly believe in the importance of market transparency. Incorporating as much uplift as possible into LMP pricing, as the MISO's eLMP does, improves market efficiency and pricing signals, ultimately lowering hedging and transaction cost to market participants. Furthermore eLMP will send appropriate market signals regarding investment in additional generation.

---

[31] *See supra* notes 5-7.

[32] *See supra* note 9.