UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.	)	Docket Nos. EL14-37-001 and ER17-1433-000

REPLY BRIEF OF THE INDEPENDENT MARKET MONITOR FOR PJM

Pursuant to the order issued in this proceeding October 17, 2019,[1] Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor ("Market Monitor") for PJM Interconnection, L.L.C. ("PJM"), submits this reply brief.[2] On February 20, 2018, the Commission accepted PJM's proposal to reduce eligible trading points for UTCs, INCs and DECs.[3] Due to the resulting change in the market rules governing UTCs, INCs and DECs, the Commission requested briefing on certain topics to which the Market Monitor responds below.

I. ANSWER

A. Request 1: In light of the changed circumstances discussed above, please explain whether PJM still believes that its tariff is unjust and unreasonable because it does not allocate uplift to UTCs.

In its response to the Commission's Request 1, PJM stated (at 3) that despite the change in allowable bid points PJM "still believes that the PJM Tariff and Operating

---

1 *PJM Interconnection, L.L.C.*, 169 FERC ¶ 61,047 at P 3.

2 Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff ("OATT"), the PJM Operating Agreement ("OA") or the PJM Reliability Assurance Agreement ("RAA").

3 *PJM Interconnection, L.L.C.*, 162 FERC ¶ 61,139, *order on reh'g* 164 FERC ¶ 61,170 (2018).

Agreement are unjust and unreasonable because they do not allocate uplift to UTCs." The Market Monitor agrees with PJM. The PJM tariff is still unjust and unreasonable because it does not allocate uplift to UTCs.

The reduction in bid points for UTCs, cited by the Commission as the basis for this proceeding, was intended to reduce the inefficiencies and unjustified wealth transfers caused by UTC false arbitrage related to modeling differences between the day-ahead and real-time markets. By reducing available bid points to PJM aggregates, PJM reduced opportunities for UTCs to profit from false arbitrage opportunities caused by modeling differences between the day-ahead and real-time market models. While the issue of false arbitrage from UTCs has been reduced, it has not been eliminated.

The change in the biddable points did not change the nature of the product. UTCs are still a matched injection and withdrawal in the day-ahead market that clears on the basis of a price spread, rather than defined prices at the source and the sink. UTCs still affect day-ahead unit market based commitment, the resources that PJM has to manually commit to maintain reliable operation in real time, the day-ahead dispatch, day-ahead LMPs, day-ahead settlements, and day-ahead flows on PJM's transmission system, whether line limits are enforced or not. UTCs continue to affect congestion and FTR target allocations and to affect which constraints PJM models in the day-ahead market. Due to differences in the day-ahead and real-time market models, UTCs still contribute to physically infeasible market flows in the PJM day-ahead market which results in UTCs being the cause of negative balancing congestion in the PJM market. Through their effect on the day-ahead market, UTCs still have a significant effect on the resources that are committed for operation in real time, resources that have to be committed in the Reliability Assurance Commitment (RAC), the resources that PJM has to manually commit in real time, and whether the resources are compensated directly through LMP and/or through uplift. This means, like any other injection and/or withdrawal on the system in the day-ahead market, UTCs affect day-ahead and real-time commitment, day-ahead and real-time prices, day-ahead and real-time settlement and day-ahead and real-time uplift.

Based on the effect of UTCs on the day-ahead and real-time market, PJM states (at 4) that "UTCs contribute to uplift in essentially the same way as INCs and DECs, and accordingly should be treated comparably." The Market Monitor agrees that UTCs affect uplift as both an injection and withdrawal, that UTCs should be treated comparably to INCs and DECs and any other injection and withdrawal, and therefore UTCs should be charged uplift based on any associated injection deviations and any associated withdrawal deviations.[4]

The apparent assumption that UTCs have special properties that should be rewarded through nonpayment of uplift is incorrect and entirely unsupported by any analysis. In fact, the analysis supports the opposite conclusion. The incentives to use UTCs to profit from price differences between the day-ahead and real-time market are not identical to the incentives to use INCs or DECs to profit from price differences in the day-ahead and real-time market. Even under a strong (and demonstrably incorrect) assumption that there are no modeling differences between the day-ahead and real-time market models, the profit incentives associated with UTCs make them, relative to INCs and DECs, an inferior and largely counterproductive false arbitrage product from a system efficiency perspective. INCs and DECs are profitable if they clear consistent with price convergence (day-ahead and real-time prices closer together). The profitability of a UTC transaction is the net of the separate profitability of the component INC and DEC. A UTC can be net profitable if the profit on one side of the UTC transaction exceeds the losses on the other side. This means that, unlike INCs and DECs, UTCs can be profitable and clear in a way that is simultaneously inconsistent with price convergence at one end of the UTC and consistent with price convergence at the other end. The counterproductive nature of UTCs relative to INCs and DECs justify the elimination of UTCs as a product. Absent elimination

---

[4] *See* PJM at 5.

of the product, UTCs should be charged uplift based on any associated injection deviations and any associated withdrawal deviations, like an INC and like a DEC.

Table 1 shows the number of cleared UTC transactions, the number of profitable cleared UTCs, the number of cleared UTCs that were profitable at their source point and the number of cleared UTCs that were profitable at their sink point in the first nine months of 2018 and 2019. In the first nine months of 2019, 48.9 percent of all cleared UTC transactions were net profitable. Of cleared UTC transactions, 67.0 percent were profitable on the source side and 33.5 were profitable on the sink side but only 6.5 percent were profitable on both the source and sink side.

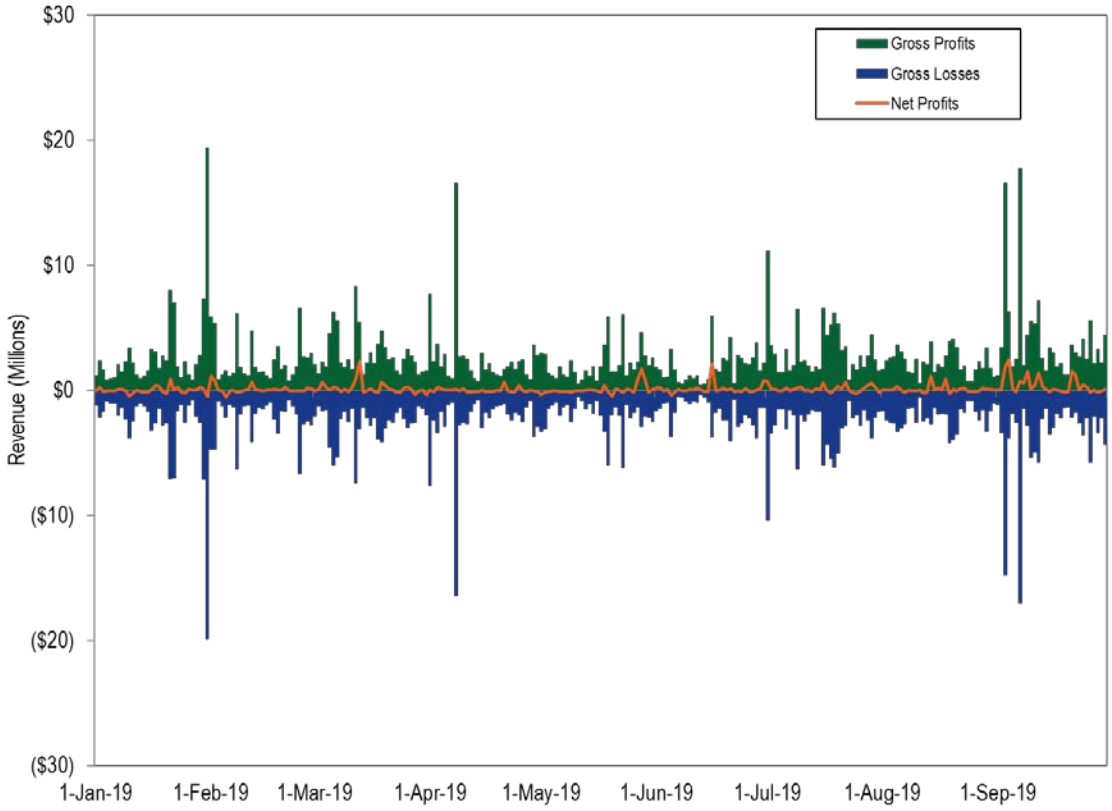
Table 1 Cleared UTC profitability by source and sink point: January through September, 2018 and 2019[5]

(Jan-Sep)	Cleared UTCs	Profitable UTCs	UTC Profitable at Source Bus	UTC Profitable at Sink Bus	UTC Profitable at Source and Sink	Profitable UTC	Profitable Source	Profitable Sink	Profitable at Source and Sink
2018	7,480,780	3,730,433	4,763,121	2,768,109	422,976	49.9%	63.7%	37.0%	5.7%
2019	6,953,487	3,399,845	4,656,194	2,329,766	450,234	48.9%	67.0%	33.5%	6.5%

Figure 1 shows total UTC daily gross profits, the sum of all positive profit UTC transactions, gross losses, the sum of all negative profit UTC transactions, and net profits and losses in the first nine months of 2019. Figure 1 shows the sizeable and simultaneous profits and losses that UTCs incur on a daily basis and the resulting net profit that UTCs earn on a daily basis. Figure 1 shows that UTCs are net profitable while being simultaneously inconsistent with price convergence at one end of the UTC and consistent with price convergence at the other end.

[5] Calculations exclude PJM administrative charges

Figure 1 UTC daily gross profits and losses and net profits: January through September, 2019[6]



In addition to a lack of evidence that UTCs contribute in an effective way to price convergence, there is strong evidence that UTCs create significant differences between day-ahead and real-time congestion events. The greater the volume of UTCs, the greater the number of congestion events in the day-ahead market and the greater the differences between the day-ahead and real-time congestion events and underlying day-ahead and real-time system solutions. This is evidence, more specifically, that the greater the volume of UTCs the greater the difference between day-ahead and real-time system solutions.

Figure 2 shows that day-ahead congestion event hours decreased significantly after September 8, 2014, when UTC activity declined as a result of a FERC order (148 FERC ¶ 61,144 (2014)), and increased after December 7, 2015, when UTC activity increased,

[6] Calculations exclude PJM administrative charges.

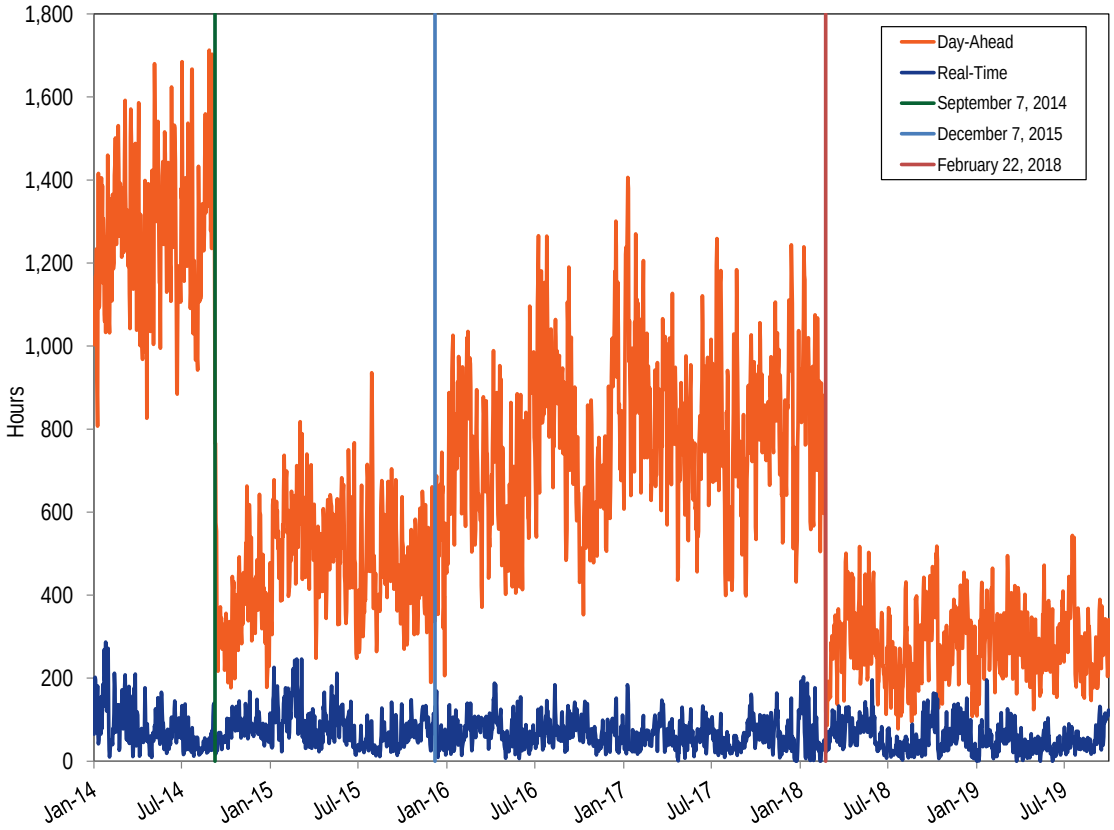
coincident with the expiration of the 15 month limit on the payment of prior uplift charges from that same order. Figure 2 also shows that day-ahead congestion event hours decreased again on February 22, 2018, when UTC activity declined, as a result of a FERC order (162 FERC ¶ 61,139 (2018)) limiting the eligible bidding points for up to congestion transactions to hubs, residual metered load and interfaces.

In the first nine months of 2019, the average hourly cleared UTC MW decreased, compared to 2018. Day-ahead congestion event hours decreased by 25.9 percent from 105,437 congestion event hours in the first nine months of 2018 to 78,155 congestion event hours in the first nine months of 2019.[7] The majority (103.1 percent) of decrease in day-ahead congestion event hours in the first nine months of 2019 occurred in January and February.

Figure 2 shows the daily day-ahead and real-time congestion event hours for January 1, 2014 through September 30, 2019.

[7] See the *2019 Quarterly State of the Market Report for PJM: January through September*, Section 11: Congestion and Marginal Losses. (November 14, 2019).

Figure 2 Daily congestion event hours: January 2014 through September 2019



Due to differences in the day-ahead and real-time market models, analysis shows that UTCs contribute to physically infeasible market flows in the PJM day-ahead market which result in UTCs being the net cause of negative balancing congestion in the PJM market.

Balancing congestion is caused by settling real-time deviations from day-ahead positions, at real-time prices. Whether balancing congestion is positive or negative depends on the differences that exist between the day-ahead and real-time market models including modeled constraints, transfer capability (line limits) of the modeled constraints, the location of deviations and deviations in flows caused by these modeling differences and the differences in day-ahead and real-time LMPs that result from the interaction among these elements. For example, one source of negative balancing congestion is that the PJM system has less actual transmission transfer capability in the real-time market than in the day-ahead market model. Due to the complexity of the day-ahead unit commitment process,

PJM only enforces or models a subset of its physical transmission limits in the day-ahead market. Transmission constraints not modeled in the day-ahead market have effectively unlimited transfer capability in the day-ahead market model. The reduction in transmission capability between the day-ahead and real-time market between high and low cost generation sources, holding load constant, requires the use of more high cost generation and the use of less low cost generation to serve load, which means a decrease in total realized congestion. This results in a net increase in generation credits relative to what was incurred in the day-ahead and, holding load constant, no change in load charges. The increase in generation credits relative to load charges causes negative balancing congestion.

Due to the nature of the modeling differences between the day-ahead and real-time market, PJM has more system flow capability in the day-ahead market than it does in the real-time market. As a day-ahead spread bid, UTCs are uniquely suited to take advantage of and profit from LMP differences caused by market and transmission modeling differences between the day-ahead and real-time market. Such differences are not legitimate arbitrage opportunities. Trading activity cannot arbitrage away structural differences. There is no benefit to such activity. There is no benefit to highlighting these well known modeling differences. UTCs generate flows in the day-ahead market that are not physically possible in the real-time market, clearing between source and sink points with little or no price differences in the day-ahead market, and settling the resulting deviations at higher real-time prices in the real-time market. The general result is that negative balancing congestion is caused by and paid to UTCs. The payments to UTCs are the result of false arbitrage opportunities and uneconomic displacement of physical resources. UTCs demonstrably cause negative balancing congestion. These costs are born by the load.

The unjust and unreasonable wealth transfer is significant and cannot be properly ignored. It has been assumed by some that load was somehow responsible for causing negative balancing congestion. The evidence shows that conclusion is not correct.

Figure 3 shows the change in UTC explicit balancing congestion costs from January 1, 2014, through September 31, 2019. Within this period, Figure 3 shows the highest monthly payment ($55.1 million) in balancing congestion credits to up to congestion transactions occurred in March 2015 and the highest monthly charge ($29.5 million) in balancing congestion charges occurred in January 2018. Figure 3 shows that UTCs are the cause of balancing congestion in PJM. As shown in Figure 3, UTCs are generally paid balancing congestion, which takes the form of negative balancing congestion charges being allocated to UTC positions.

Figure 3 Monthly balancing congestion cost incurred by up to congestion: January 2014 through September 2019

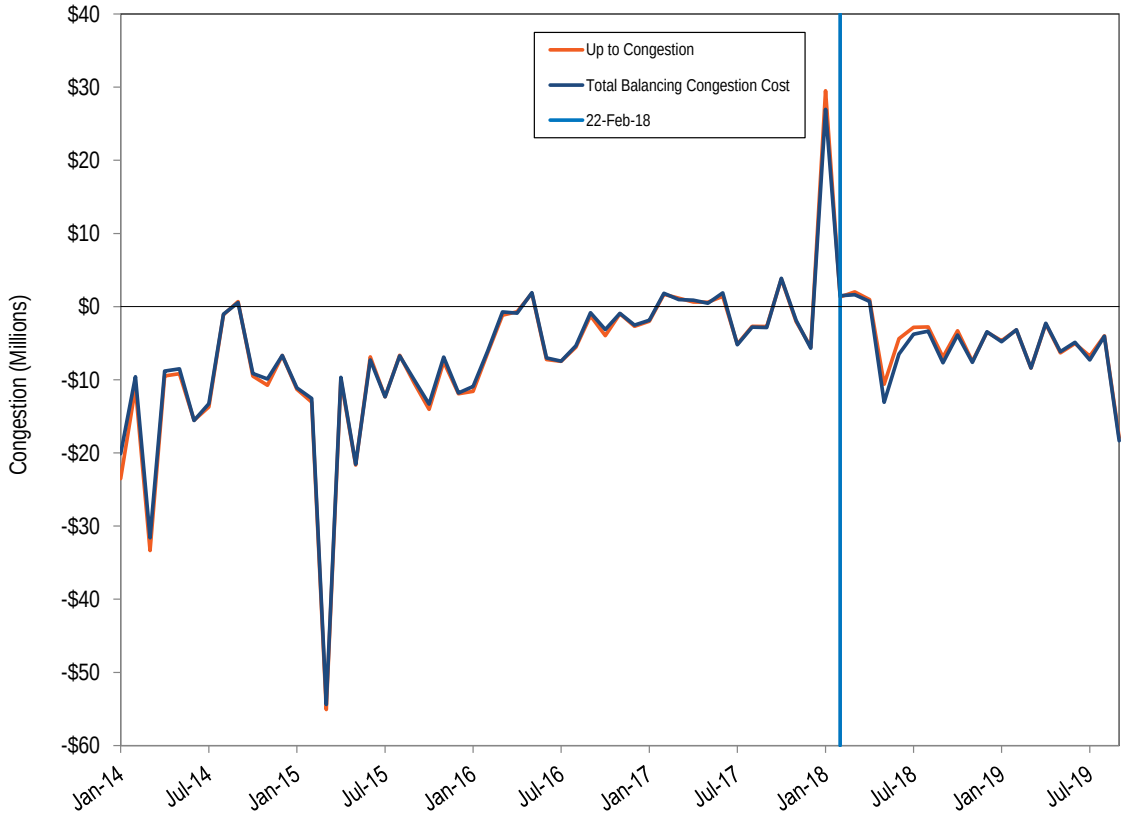


Table 2 provides an example of how UTCs can interact with, and profit from, differences in day-ahead and real-time transmission limits and generate negative balancing congestion. In the example, Bus A and Bus B are linked by a transmission line. In the day-ahead market the transmission limit is modeled as 9,999 MW (no limit is enforced in the

day-ahead market solution). In the real-time market the physical limit between bus A and bus B is 50 MW. Generation at A (300 MW) has a price of $1.00 and Generation at B (300 MW) has a price of $6.00. There is 100 MW of load at bus A and 100 MW of load at bus B. There is a UTC of 200 MW that will source at bus A and sink at bus B if the spread in the prices between A and B is less than $1.

As a result of the fact that the transmission capability between A and B is unlimited in the day-ahead market, all of load at A and B can be met with the $1 generation at bus A. The constraint between A and B does not bind in day-ahead so the price at A and B is $1. The price spread between bus A and bus B is zero, which is less than the UTC spread requirement of $1, so the UTC clears. The UTC causes a 200 MW injection at A and 200 MW withdrawal at B, creating 200 MW of flow between bus A and bus B. The 300 MW of combined flow from generation at A and UTC injections at A to the load and UTC sink at B does not exceed the DA modeled limit between A and B. This means that all 200 MW of the UTC injection at A and 200 MW of withdrawal at B can clear without forcing a price spread between A and B. Total day-ahead congestion, which is the difference between congestion charges and credits, is zero. There is no price difference between the two nodes and every MW of injection and every MW of withdrawal at bus A and bus B settles at the same price.

In the real-time market, the transmission line between bus A and bus B has a 50 MW limit. The UTC does not physically exist in the real-time market and therefore generates deviations at Bus A (-200 MW) and at Bus B (+200 MW). The load at A (100 MW) and B (100 MW) does not change, so there are no load deviations. With only 50 MW of transmission capability between A and B, the generation at A cannot be used to meet total load on the system. Generation from A meets the load at A (100 MW) and can supply only 50 MW of the 100 MW of load at B. Due to the binding constraint between A and B, the remaining 50 MW of load at B must be met with local generation at B at a cost of $6 and the price at A remains $1.

The reduction in transmission capability between A and B requires a 50 MW reduction in relatively inexpensive $1 generation at A and the use of 50 MW of relatively

expensive $6 generation at B. The UTC must settle its deviation MW (-200 MW at A and +200 MW at B) at the real-time price of $1 at A and $6 at B. The UTC pays $200 to settle its position at A and is paid $1,200 to settle its position at B. The resulting net payment to the UTC is $1,000 in balancing credits.

Table 2 shows the balancing credits and charges generated by the real-time deviations by source in the example. Total congestion (day-ahead plus balancing congestion) in this example is negative $1,250, with net total congestion credits (payments) to generation and the UTC exceeding the total charges collected from load. Under current market rules, the negative balance owed to generation and the UTC is billed to the load as negative balancing congestion.[8]

Due to the modeling differences, the UTC did not contribute to price convergence between the day-ahead and real-time market and did not improve efficiency in system dispatch or commitment. The UTC did significantly increase the cost of energy to the load, with load paying the UTC $1,000 in negative balancing, over and above the costs of generation that was needed to meet realized load at bus A and bus B.

---

[8] On September 15, 2016, FERC ordered PJM to allocate balancing congestion to load, rather than to FTRs, to modify PJM's Stage 1A ARR allocation process and to continue to use portfolio netting. 153 FERC ¶ 61,180

Table 2 Example of UTC causing and profiting from negative balancing congestion

Prices	Bus A	Transfer Capability (Line Limit MW)	Bus B	
LMP DA	$1.00	9,999	$1.00	
LMP RT	$1.00	50	$6.00	
Day-Ahead MW	**Bus A**		**Bus B**	**Total MW**
Day-Ahead Generation	200		0	200
Day-Ahead Load	(100)		(100)	(200)
Day-Ahead UTC (+/-)	200		(200)	0
Total MW	300		(300)	0
Day-Ahead Credits and Charges	**Bus A**		**Bus B**	**Total Day-Ahead Congestion**
Total DA Gen Credits	$200.00		$0.00	
Total DA Load Charges	$100.00		$100.00	
Total DA UTC Credits	$200.00		($200.00)	
Total DA Credits	$300.00		($300.00)	$0.00
Total Day-Ahead Congestion (Charges - Credits)				$0.00
MW	**Bus A**		**Bus B**	**Deviations**
RT GEN Deviations	(50)		50	
RT Load Deviations	0		0	
DA UTC (+/-)	(200)		200	
Total Deviations	(250)		250	0
Balancing Credits and Charges	**Bus A**		**Bus B**	**Balancing Congestion Credits**
Total BA Gen Credits	($50.00)		$300.00	$250.00
Total BA Load Charges	$0.00		$0.00	
Total BA UTC Credits	($200.00)		$1,200.00	$1,000.00
Total BA Credits	($250.00)		$1,500.00	$1,250.00
Total Balancing Congestion (Charges - Credits)				($1,250.00)

The apparent assumption that UTCs have special properties that should be rewarded through nonpayment of uplift is incorrect and entirely unsupported by any analysis.

B. Request 2: While PJM has previously stated that it is not possible to assess the impact of any individual UTC transaction on uplift, is PJM able to determine the typical aggregate impact of UTCs on uplift? How does this compare to other virtual transactions (i.e., INC and DEC transactions)? Please provide additional analysis on the typical magnitude (i.e., total change) and direction (i.e., increasing or decreasing) of UTCs' impact on uplift. Such analysis should focus on more recent time periods that account for the changed circumstances since PJM submitted its last brief in this proceeding.

In response to this request, PJM performed a counterfactual analysis "to measure how uplift changes in the Day-ahead Energy Market without Virtual Transactions."[9] This analysis cannot and does not provide any useful insights into the actual impacts of removing virtuals because it does not and cannot address the interactions between day-ahead and real-time markets that would result, including the impacts on PJM dispatch, impacts on balancing congestion and impacts on market behaviors. As noted by PJM (at 6–8), the analysis presented by PJM is limited to the effect of virtuals within the day-ahead market alone. This means that the uplift results presented by PJM do not provide an indication of whether UTCs increase or decrease day-ahead and real-time total uplift, total system costs or total market efficiency.

Despite PJM's caveats, PJM produced day-ahead market based counterfactual results by removing INCs and DECs and removing UTCs from the day-ahead market and calculating the effect on day-ahead uplift and unit dispatch/commitment.

PJM's results show that removing UTCs or removing INCs and DECs would, on average, increase day-ahead uplift. As PJM notes (at 9), the results are intuitive but not informative. UTCs and INCs and DECs together smooth out demand and supply curves, by introducing supply and demand sensitivities to price where none exists among physical supply and demand. The result of the artificial sensitivity in price is that physical resources are displaced from being dispatched in the day-ahead solution to meet physical load, or are

---

[9] *See* PJM at 6.

dispatched where when no physical generation will be needed. While interesting, this displacement of physical generation and artificial demand sensitivity in the day-ahead market results does not translate into more efficient, cost effective commitment solutions relative to the actual physical system requirements that will be realized in the real-time market. This is amplified by the existence of modeling differences between the day-ahead and real-time market. Generation that is displaced in the day-ahead solution by smoothed out supply and demand curves may be needed in the real-time solution. The counterfactual analysis performed by PJM does not capture this effect, and therefore the counterfactual analysis provides no insight into the effect of UTCs on market efficiency and uplift.

However, as noted in Response 1, there is clear evidence UTCs cause negative balancing congestion in PJM's market. This provides evidence that the virtual MW displacement of physical generation observed by PJM in its counterfactual analysis is detrimental to market efficiency. UTCs are displacing significant generation resources that are needed to meet the security constrained dispatch in real time, all at the expense of load.[10] PJM's results are consistent with a conclusion that removing UTCs would make load better by reducing negative balancing congestion costs allocated to load.

Clearly, caution should be exercised in drawing any conclusions regarding the effect of UTCs and INCs and DECs on the day-ahead market solution based on PJM's counterfactual analysis performed at the Commission's request. The counterfactual DA results generated by PJM's analysis do not reflect how PJM would actually clear or administer the day-ahead market in the absence of UTCs and/or INCs and DECs. In actual practice, PJM modifies the PJM day-ahead market transmission model and manually commits units on a daily basis to better align the day-ahead commitment and the important constraint shadow prices with the expected real-time system results. These manual

---

[10] See the *2018 State of the Market Report for PJM*, Volume 2: Section 11 –Congestion and Marginal Losses.

modifications to commitment and the system model are designed to mitigate the effect of virtual MW on the day-ahead market solution relative to expected real-time system needs and conditions. PJM did not indicate that it undid these manual modifications to commitment and the system model to account for the counterfactual absence of the virtual bids. This would explain why PJM had convergence errors in some of the days it tried to include in its analysis.[11] In the absence of an unwinding of these manual interventions, the day-ahead results provided by PJM provide no insight into what the actual effect of removing a class of resources would have on day-ahead uplift, holding aside the inability to model the interaction of the counterfactual day-ahead market results and the resulting real-time market.

More generally, counterfactual analysis examining the effects of removing a specific class of resources or products or participants, holding all else constant, provides no insight into the actual effect of the removed class of resource, product or participants on uplift or any other metric. PJM notes that removing virtuals MW caused an increase in day-ahead market uplift in its counterfactual analysis. The rationale, as explained above, is intuitive, but uninformative for purposes of determining whether or not the specified product causes uplift as a class, or whether the specific class causes more or less uplift than any other class of participation/product. For example, PJM could run a counterfactual study regarding the effect of removing all physical load from the day-ahead market. The result would be a reduction in day-ahead uplift, as less generation would be committed in the day-ahead market run. This result is similarly intuitive, but uninformative as to the effect of load on uplift in the day-ahead market or as in indicator of the relative importance of load to the level of uplift incurred in the day-ahead market or in total uplift, based on the interaction between the day-ahead and real-time market solutions.

---

[11] *See* PJM at 8.

As indicated by PJM, and explained above, the counterfactual analysis provided by PJM at the Commission's request, provides no useful information about the total or relative effect of virtual bids, or a subset of virtual bids, on day-ahead or total uplift. What is known is that virtual bids do affect day-ahead dispatch, commitment, LMPs, market flows and day-ahead settlements. This means that virtual bids affect day-ahead uplift. Through their effect on the day-ahead market, virtual MW affect real-time LMPs, commitment, dispatch and settlement in the real-time market. This means that virtual MW in the day-ahead market also affect real-time uplift. It is also known that virtual MW cause significant deviations between the day-ahead and real-time market solutions, as realized in the set of binding constraints, unit dispatch, unit commitments and resulting negative balancing congestion.

C. Request 3: Similarly, please provide additional analysis on the changes to unit commitment caused by UTCs that takes into account the changed circumstances since PJM submitted its last brief in this proceeding. Compare the extent of the unit commitment changes from UTCs with that caused by INCs and DECs, and explain whether and how this information could be used for the purpose of allocating uplift to INCs, DECs, and UTCs.

PJM used the same counterfactual analysis used to respond to request 2 to respond to request 3. The same caveats and issues mentioned in PJM and the Market Monitor's response to request 2 also apply here. As noted by PJM (PJM at 6–8), the analysis presented by PJM is limited to the effect within the day-ahead market alone. In short, this means that the analysis is meaningless as the day-ahead market never runs alone and without a corresponding real-time market. More precisely, this means that the commitment results presented by PJM do not provide an indication of whether the change in commitment with or without virtual bids improved total market efficiency or total costs or total uplift relative to an optimal real-time market solution. Absent an examination of the resulting real-time market outcome, so that the full day-ahead and real-time effect is measured, there is no clear way to examine whether the resulting market results are better or worse due to the counterfactual elimination of a particular transaction or set of transactions. PJM

commitment and dispatch decisions will change and market participant behavior will change and these effects are not and cannot be incorporated in the counterfactual analysis.

However, based on the effect of UTCs on balancing congestion, there is clear evidence that UTCs are displacing significant generation resources that are needed to meet the security constrained dispatch in real time, all at the expense of load. PJM's counterfactual results, because they only examine day-ahead effects, do not reflect any possible improvements in the alignment of day-ahead resource commitment and dispatch with optimal real-time unit commitment that the removal of UTCs could cause.

D. Request 4: Based on the responses to the forgoing and in light of other recent tariff changes that appear to have reduced the volume of UTC trading, does PJM believe that UTCs' impact on uplift warrants the allocation of uplift charges? Why or why not?

There is no factual basis to support the conclusion that UTCs should continue to receive unduly preferential treatment with regard to the allocation of uplift. The level of UTC trading remains high. Even if the level of UTC trading were to decrease, such decrease would not change the fact that UTCs should pay uplift. Even if there were only one UTC transaction, it should pay uplift.

E. Request 5: Are there considerations other than UTCs' impact on uplift that would still render the PJM tariff unjust and unreasonable because it does allocate the costs of uplift to all deviations? Please explain.

In their response to Request 5, PJM states that "[t]he current approach of not allocating the costs of uplift to all deviations is unduly discriminatory and preferential because it provides unfair treatment to certain deviations without any economic rationale or justification." (PJM at 12) PJM also argues that the current unduly discriminatory and preferential treatment of UTCs also "creates the perverse incentive for Market Participants to submit UTCs as opposed to INCs and DECs, which are allocated uplift costs." (PJM at 13). PJM also states that "analysis has found that INCs and DECs help improve market efficiency by helping to converge day-ahead and real-time prices, and help mitigate market power concerns given the limited number of physical generators…[b]y contrast, UTCs have

not been found to provide the same benefits to the market." (PJM at 13). The Market Monitor agrees with these statements and PJM's resulting conclusion that PJM tariff is unjust and unreasonable because it does not allocate the costs of uplift to all deviations. (PJM p. 12)

F. Request 6: If PJM still believes that uplift should be allocated to UTCs, please explain whether PJM believes that UTC transactions should be assessed a flat fee or whether an alternative methodology is now more appropriate in light of changed circumstances.

The Market Monitor agrees with PJM's determination (at 12) that collecting uplift from UTCs in the form of a flat fee is inappropriate and unsupported. Such an approach is inconsistent with the market design's assignment of uplift in other instances.

G. Request 7: If some types of transactions typically have a smaller impact on uplift than other types of transactions, is it appropriate for PJM to allocate uplift differently to some deviations based on the impact of that transaction type? Why or why not?

The Market Monitor agrees with PJM's conclusion (at 7) that there is no basis for the assertion that one type of injection and/or withdrawal, and any resulting real-time deviations, have a greater or lesser effect on uplift than any other type of injection and/or withdrawal and any associated deviations. The total and relative effect on uplift of any single transaction or group of transactions is entirely dependent on system conditions at the time of the transaction(s) and all other market activity by all other participants in that market, including PJM in its administration of the market. The Market Monitor agrees with PJM's conclusion that it is inappropriate to allocate uplift differently across deviations based on the type of transaction causing the deviations (at 7)

H. Request 8: Previous analysis from PJM and its stakeholders suggests that PJM might be able to establish at least a rough relationship between energy and transmission related uplift. Please explain whether PJM could create an allocation factor to allocate a certain percentage of uplift associated with deviations to UTCs, and please share PJM's perspective on such an approach.

The Market Monitor agrees with PJM's conclusion (at 13) that there is no basis for the assertion that one type of injection and/or withdrawal, and any resulting real-time deviations, has a greater or lesser effect on uplift than any other type of injection and/or withdrawal and any associated deviations. The total and relative effect on uplift of any single transaction or group of transactions is entirely dependent on system conditions at the time of the transaction(s) and all other market activity by all other participants in that market, including PJM in its administration of the market. There is, therefore, no basis for the conclusion that there should be a different allocation of uplift to UTCs than other transactions.

I. Request 9: Please explain whether PJM would be able to allocate uplift costs to UTCs by assessing a fixed fee on a per transaction basis and how PJM would determine such a fixed fee. In particular, please describe the relationship between the fixed fee and the amount of uplift caused by UTCs and how frequently such a charge would need to be updated. In addition, please explain whether it is appropriate to provide UTCs, but not other virtual transactions, with the certainty of a fixed fee.

The Market Monitor agrees with PJM's conclusion (at 14) that there is no basis for the assertion that one type of injection and/or withdrawal, and any resulting real-time deviations, has a greater or lesser effect on uplift than any other type of injection and/or withdrawal and any associated deviations. The total and relative effect on uplift of any single transaction or group of transactions is entirely dependent on system conditions at the time of the transaction(s) and all other market activity by all other participants in that market, including PJM in its administration of the market. The suggestion that UTCs would be guaranteed a fixed fee while all other transaction types had variable fees would continue the current practice of providing unwarranted preferential treatment of UTCs relative to

other transaction types. There is no factual or theoretical basis for allocating the risk of UTC uplift to other transactions.

J. Request 10: Share any additional new pertinent information since PJM's last set of comments were filed with the Commission.

There is strong evidence that UTCs have a significant impact on congestion events in the day-ahead market and, as a result, contribute to differences between day-ahead and real-time congestion events. The Market Monitor has continued to develop this analysis and has reported the results.[12] The greater the volume of UTCs, the greater the number of congestion events in the day-ahead market and the greater the number of differences between the day-ahead and real-time congestion events. By contributing to differences between day-ahead and real-time market flows and congestion events due to differences between the day-ahead and real-time market models, UTCs are contributing to differences between the day-ahead and real-time market results, some of which are being realized as significant levels of negative balancing congestion. Analysis shows that UTCs are the cause of negative balancing congestion in the PJM market (See Response 1).

The apparent assumption that UTCs have special properties that should be rewarded through nonpayment of uplift is incorrect and entirely unsupported by any analysis. There is no evidence to suggest that UTCs should continue to receive preferential treatment with regard to the allocation of uplift. All of the recent analysis by PJM and the Market Monitor supports the assertion that UTCs, if they remain in the market, should pay uplift in exactly the same way as other transactions. Elimination of the preferential treatment of UTC will result in improving the incentives to use UTCs, INCs and DECs

---

[12] See the *2019 Quarterly State of the Market Report for PJM: January through March*, Section 11: Congestion and Marginal Losses (May 9, 2019); the *2019 Quarterly State of the Market Report for PJM: January through June*, Section 11: Congestion and Marginal Losses (August 8, 2019); and the *2019 Quarterly State of the Market Report for PJM: January through September*, Section 11: Congestion and Marginal Losses (November 14, 2019). The State of the Market Reports for PJM are available at: <http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2019.shtml>.

when supported by market signals and not by artificial and arbitrary rules limiting uplift payments.

II. CONCLUSION

The Market Monitor respectfully requests that the Commission afford due consideration to arguments raised on brief as the Commission resolves the issues raised in this proceeding.

Respectfully submitted,

Joseph E. Bowring
Independent Market Monitor for PJM
President
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8051
joseph.bowring@monitoringanalytics.com

Howard J. Haas
Chief Economist
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8054
howard.haas@monitoringanalytics.com

Jeffrey W. Mayes

General Counsel
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8053
jeffrey.mayes@monitoringanalytics.com

December 18, 2019

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Eagleville, Pennsylvania,
this 18th day of December, 2019.

Jeffrey W. Mayes
General Counsel
Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Eagleville, Pennsylvania 19403
(610) 271-8053
jeffrey.mayes@monitoringanalytics.com