

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Uplift Cost Allocation and Transparency in)	
Markets Operated by Regional Transmission)	Docket No. RM17-2-000
Organizations and Independent System)	
Operators)	
)	

**COMMENTS OF THE
INDEPENDENT MARKET MONITOR FOR PJM**

Pursuant to the notice of proposed rulemaking issued January 19, 2017 (NOPR), Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM (“Market Monitor”), submits these comments on the NOPR’s proposal to revise its regulations to require that each regional transmission organization (RTO) and independent system operator (ISO) that chooses to allocate real-time uplift costs to deviations, must allocate such costs only to deviations that can reasonably be expected to have caused those costs.¹

I. COMMENTS

A. The Causes of Real-Time Uplift Costs in PJM.

In PJM, resources are paid real-time uplift costs for specific reasons:

Resources scheduled in the Day-Ahead Energy Market that are dispatched by PJM to run at a noneconomic point are made whole to their offer.

¹ See *Uplift Cost Allocation and Transparency in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Notice of Proposed Rulemaking (“NOPR”), 158 FERC ¶ 61,047 (2017).

Resources not scheduled in the Day-Ahead Energy Market that are dispatched by PJM to run with an offer higher than the energy price are made whole to their offer.

Resources scheduled to start but canceled by PJM dispatch before they come online are made whole up to their start offer.

Resources reduced by PJM dispatch in real time due to constraints not reflected in the LMP are paid an opportunity cost equal to the difference between the LMP and their offer.

Resources scheduled in the Day-Ahead Energy Market that are not called on by PJM dispatch in real time are paid an opportunity cost equal to the difference between their energy payments and their total offer.

Emergency purchases made by PJM that are scheduled with an offer higher than the LMP are made whole to their offer.

All energy payments to demand response are uplift costs.

B. The Allocation of Real-Time Uplift Charges in PJM.

Real-time uplift costs are collected from market participants in the form of real-time uplift charges. Some real-time uplift charges are collected based on deviations and some are collected based on real-time load and exports. Table 1 and Table 2 show the categories of uplift credits and charges in PJM and their relationship. These tables show how the charges are allocated.

Table 1 Day-ahead and balancing operating reserve credits and charges

Credits Received For:	Credits Category:		Charges Category:	Charges Paid By:
<u>Day-Ahead</u>				
Day-Ahead Import Transactions and Generation Resources	Day-Ahead Operating Reserve Transaction Day-Ahead Operating Reserve Generator	→	Day-Ahead Operating Reserve	Day-Ahead Load Day-Ahead Export Transactions Decrement Bids in RTO Region
Economic Load Response Resources	Day-Ahead Operating Reserves for Load Response	→	Day-Ahead Operating Reserve for Load Response	Day-Ahead Load Day-Ahead Export Transactions Decrement Bids in RTO Region
Unallocated Negative Load Congestion Charges Unallocated Positive Generation Congestion Credits		→	Unallocated Congestion	Day-Ahead Load Day-Ahead Export Transactions Decrement Bids in RTO Region
<u>Balancing</u>				
Generation Resources	Balancing Operating Reserve Generator	→	Balancing Operating Reserve for Reliability Balancing Operating Reserve for Deviations Balancing Local Constraint	Real-Time Load plus Real-Time Export Deviations Applicable Requesting Party in RTO, Eastern or Western Region
Canceled Resources	Balancing Operating Reserve Startup Cancellation			
Lost Opportunity Cost (LOC)	Balancing Operating Reserve LOC	→	Balancing Operating Reserve for Deviations	Deviations in RTO Region
Real-Time Import Transactions	Balancing Operating Reserve Transaction			
Economic Load Response Resources	Balancing Operating Reserves for Load Response	→	Balancing Operating Reserve for Load Response	Deviations in RTO Region

Table 2 Reactive services, synchronous condensing and black start services credits and charges

Credits Received For:	Credits Category:		Charges Category:	Charges Paid By:
<u>Reactive</u>				
Resources Providing Reactive Service	Day-Ahead Operating Reserve Reactive Services Generator Reactive Services LOC Reactive Services Condensing Reactive Services Synchronous Condensing LOC	→	Reactive Services Charge Reactive Services Local Constraint	Zonal Real-Time Load Applicable Requesting Party
<u>Synchronous Condensing</u>				
Resources Providing Synchronous Condensing	Synchronous Condensing Synchronous Condensing LOC	→	Synchronous Condensing	Real-Time Load Real-Time Export Transactions
<u>Black Start</u>				
Resources Providing Black Start Service	Day-Ahead Operating Reserve Balancing Operating Reserve Black Start Testing	→	Black Start Service Charge	Zone/Non-zone Peak Transmission Use and Point to Point Transmission Reservations

C. The NOPR's Proposed Real-Time Uplift Allocation Would Not Result in More Just and Reasonable Rates.

The NOPR assumes that it is possible to assign real-time uplift to individual market transactions based on whether each transaction reduces or increases uplift. The NOPR proposes to allocate real-time uplift charges to deviations based on a system wide capacity category and a congestion management category. The Market Monitor agrees that if this were possible, it would be ideal to assign uplift only to transactions that are specifically responsible for the incurrence of that uplift. But this is not possible and has not been demonstrated to be possible.² The Market Monitor agrees with PJM that it is not possible to determine causality at the level of an individual transaction (e.g. load withdrawal, generator injection, virtual transaction).³

A MWh that is produced or not produced or a MWh that is consumed or not consumed in real time compared to its day-ahead position has multiple effects in the market. It is not correct to assume that the impact of a specific MWh is binary (helping or hurting) and that the impact only affects the market outcome in the hour in which it occurs. An unexpected resource outage does not only help or hurt power balance or congestion, and its impact is not limited to the hours in which the resource was scheduled to operate.

In order to even approximate the impact of individual transactions on uplift, PJM would have to run multiple day-ahead and real-time scenarios. This is simply not practical and is unlikely to result in a definitive, unique answer. It is also possible, under this approach, that a large amount of uplift could be assigned to a small number of transactions with a resulting uplift charge extremely disproportionate to the market value of the

² For example, MISO's allocation has not been demonstrated to actually assign uplift to individual transactions based on their individual impact on uplift. In addition, MISO does not implement a consistent cost causation approach (price volatility make whole payments).

³ See Comments of the Independent Market Monitor for PJM, Docket No. AD14-14-000 (April 6, 2016) at 18.

transaction. This possibility would also substantially increase credit requirements for many market participants.

Given the complexity of modeling the impact of individual transactions on uplift, such an approach is likely to create significant uncertainty for market participants who have to try to anticipate the impact of their actions on uplift. But the impact of those actions depends on the actions of other market participants. This level of uncertainty for market participants will increase the impact of uplift allocation on the economic decisions of market participants rather than reduce it. This is likely to reduce market efficiency.

The reality of uplift is that it is complicated and impossible to untangle at the level of individual transactions. Nonetheless, the allocation of uplift should follow the basic principle that uplift should be allocated to the participants whose actions result in uplift costs, to the extent possible.

If the Commission wants to further pursue the transaction based approach in the NOPR, the Market Monitor recommends that the Commission require that any proposed model for the allocation of uplift be demonstrated to be feasible via detailed modeling. The proposed model should incorporate all the details of the day-ahead and real-time markets and the outcomes of these markets should result in modeled settlements. Given the potential impact on markets and market participants, it would make sense to demonstrate the workability of any proposals rather than implement them without detailed knowledge of the consequences, both intended and unintended.

D. Real-Time Uplift Allocation Based on System Wide Capacity and Congestion Deviations Would Not Be An Improvement To the Status Quo in PJM.

The NOPR recognizes that several broad assumptions have to be made for the actual implementation of this proposal because the complex approach defined cannot be applied in practice. But broad assumptions will lead to an allocation that is not very different than the status quo. Some of these assumptions are already covered in the NOPR. For example, if a resource is committed or decommitted by the RTO, the deviations caused by that resource will not be considered in the uplift allocation, regardless of whether it caused uplift to be

incurred directly or indirectly. While it makes sense to exempt resources following dispatch from paying uplift, it is inconsistent with the cost causation logic. Someone must still pay the associated uplift. In addition, the NOPR does not propose a solution for one of the most important assumptions, i.e. how to divide the costs between the two proposed uplift categories.

The Market Monitor does not agree that this complex method for real-time uplift allocation is required in order to have just and reasonable rates. This allocation method appears to be attractive primarily for market transactions that can take advantage of modeling differences between the day-ahead and the real-time markets while minimizing their net position in the power balance constraint and/or their net position by transmission constraint.

E. The Proposed Deviation Netting and Settlement Granularity Will Result in More Volatile and Unexpected Uplift Rates.

In the NOPR proposal, demand and supply would net to a position that could be categorized as a help or hurt, regardless of how the demand or the supply individually impacted the system. The Market Monitor understands the intended goal of netting. In theory, if a market participant has zero impact on a transmission constraint or on power balance, it should not pay any uplift associated with a commitment to relieve either constraint. That would be true if the impact of the hourly net position could be isolated from other related market results. For example, supply in excess of a day-ahead schedule helps the power balance constraint. But that excess may affect the commitment of other units and result in uplift payments. If the excess capacity is no longer available in the next hour, PJM may replace the MWh of the slow start unit that would have been dispatched in the prior hour with the MWh of the fast start unit. The unit with the excess capacity will have zero deviations but it caused the commitment or dispatch of a different unit than the one scheduled.

The NOPR also proposes to allocate uplift on an hourly basis. In PJM, uplift is allocated on a daily basis. The same negative effect resulting from expanding deviation

netting applies to allocating uplift hourly. The impact of a negative or positive deviation in an hour has a ripple effect on the commitment, dispatch and prices of the next hours.

These two proposed changes in the NOPR will reduce the amount of MWh that pay uplift and will make the uplift rate more volatile.

F. Another Path to the Goal.

The Market Monitor agrees with the underlying point of the NOPR that the allocation of uplift in PJM and wholesale power markets can and should be improved. Such improvements would enhance market efficiency and reduce the impact of uplift charges on economic decisions. The discussions that the Market Monitor, PJM and PJM stakeholders have had on this topic in the PJM Energy Market Uplift Senior Task Force (EMUSTF) since 2013 have been about finding a balance between the goal of cost causation and the practical limits on the ability to achieve that goal exactly. The practical limits are significant for market efficiency.

The Market Monitor proposed an allocation method in the EMUSTF, described in the State of the Market Report, that attempts to balance these principles and would significantly improve the alignment of uplift charges with responsibility for the associated uplift costs.⁴ The Market Monitor's proposal meets the Commission's standard (at P38) that allocations to deviations should be to deviations that can reasonably be expected to have caused those costs.

The Market Monitor recommends creating a new category for energy uplift payments to units scheduled in the Day-Ahead Energy Market (for reasons other than reactive or black start services), which would be allocated to all day-ahead transactions and resources. All these transaction types have an impact on the outcome of the day-ahead scheduling process, so allocating these costs to all day-ahead transactions ensures that all

⁴ See 2016 State of the Market Report for PJM, v. 2, Section 4: Energy Uplift.

transactions that affect the way the Day-Ahead Energy Market clears are responsible for any energy uplift credits paid to the units scheduled in the Day-Ahead Energy Market. Energy uplift payments to units scheduled by PJM as must run in the Day-Ahead Energy Market for reasons related to expected conditions in the real-time market (not including reactive or black start services) should be allocated to real-time load, real-time exports and real-time wheels.

It is not clear how such uplift would be addressed under the NOPR. It is not logically possible to separate day-ahead from real-time uplift, as they are inextricably linked.

The Market Monitor recommends allocating energy uplift payments to units not scheduled in the Day-Ahead Energy Market and committed for real time prior to the operating day, to the current deviation categories with the addition of up to congestion, wheels and units that clear the Day-Ahead Scheduling Reserve Market but do not perform. The Market Monitor agrees that deviations offsets based on internal bilateral transactions should be excluded.

The Market Monitor recommends allocating energy uplift charges that result from units committed during the operating day to a new deviation category which would include physical transactions or resources (day-ahead minus real-time load, day-ahead minus real-time interchange transactions, generators and DR not following dispatch). This allocation would ensure that commitment changes that occur during the operating day and that result in energy uplift payments are paid by transactions or resources affecting the commitment of units during the operating day. For example, real-time load or interchange transactions that do not bid in the Day-Ahead Energy Market, generators and DR resources that do not follow dispatch would be allocated these costs. Any reliability commitment should be allocated to real-time load, real-time exports and real-time wheels independently of the timing of the commitment.

The Market Monitor's proposal strikes a balance between cost causation and practicality while allocating uplift to deviations that could have caused uplift and not

allocating uplift to deviations that could not have caused uplift based on the timing of the transactions (day-ahead versus real-time) and based on the timing of the unit commitment (prior to or during the operating day). The Market Monitor’s proposal shifts a portion of the current uplift paid by all deviations to deviations from transactions that only occur in real time (load, generation and interchange transactions). This approach excludes virtual transactions from some uplift allocation (uplift paid to units committed during the operating day). The Market Monitor’s proposal includes changes in the allocation of day-ahead uplift. The Market Monitor quantified the results of the proposal on categories of virtual and physical transactions.⁵

G. Transparency.

The Market Monitor supports the Commission’s approach to transparency of uplift payments and reasons for those payments. Transparency should be the goal subject to maintaining the confidentiality of market strategies and the security of the system.

The Market Monitor has recommended that PJM revise the current operating reserve confidentiality rules in order to allow the disclosure of complete information about the level of operating reserve charges by unit and the detailed reasons for the level of operating reserve credits by unit in the PJM region.⁶

1. Uplift Reporting.

The NOPR proposes that RTOs post two energy uplift reports.

Report 1 would include daily uplift by transmission zone by category. The Market Monitor supports this level of transparency. The Market Monitor does not agree that data should be aggregated to ensure that data from no less than four resources is posted. In the case where only one resource owner receives all the uplift payments in a zone, this

⁵ See 2016 State of the Market Report for PJM, v. 2, Section 4: Energy Uplift.

⁶ See 2016 State of the Market Report for PJM, v. 2, Section 4: Energy Uplift.

provision would result in a lack of transparency. In addition, this requirement could result in the arbitrary grouping of zones to meet the standard, which could change from month to month. This would defeat the goal of transparency. The Market Monitor recommends that this report be posted regardless of the number of owners/resources included.

Report 2 would include monthly uplift by resource. The Market Monitor supports this level of transparency. The Market Monitor also supports specifying the category of uplift. For example, in PJM, the major categories of uplift are day-ahead operating reserves, balancing operating reserves and lost opportunity cost. The Market Monitor does not agree that additional information disclosure is necessary or appropriate.

2. Reporting Operator-Initiated Commitments.

The Market Monitor generally supports reporting the commitments made by RTOs outside of the day-ahead market.

3. Transmission Constraint Penalty Factors.

The Market Monitor supports the Commission's proposal to require RTOs/ISOs to include the values of transmission penalty factors in their tariffs.⁷ The Market Monitor has recommended since 2015 that PJM explicitly state its policy on the use of transmission penalty factors in setting LMP, the appropriate triggers for the use of transmission penalty factors and when transmission penalty factors should be used to set the shadow prices of transmission constraints.⁸

The Commission proposes that if the RTO/ISO uses different transmission penalty factors for different reasons, the RTO/ISO should be required to include all sets of transmission constraint penalty factors in the tariff. The Market Monitor agrees. The Market Monitor believes it is important to establish unambiguous guidelines to determine

⁷ See NOPR at P 96

⁸ See 2015 Annual State of the Market Report for PJM, v. 2, Section 3: Energy Market.

transmission penalty factors. The Market Monitor suggests that the Commission require RTOs/ISOs to establish such guidelines.

The Commission did not clearly state how the RTOs/ISOs should allow transmission penalty factors to set LMPs. In the dispatch algorithms used by RTOs/ISOs, the penalty factor should affect LMPs in exactly the same manner that offer prices of generating units affect the LMPs. This means that when the flow on the transmission constraint exceeds the line limit, the shadow price of that transmission constraint should equal the transmission penalty factor.

4. Transmission Outages.

The Market Monitor has made a set of recommendations related to the reporting of transmission outages.⁹ The timely and consistent reporting of transmission outages needs to be enhanced for market transparency. A significant portion of transmission outages are not reported in a timely manner. There are significant differences among transmission outages reported to participants prior to the day-ahead market, included in the day-ahead market model, and that occurred in real time.

5. Availability of Market Models.

The Commission's request for comment on the availability of market model data is in response to concerns that the dissemination of information regarding the RTO's/ISO's network model may be limited to certain market participants.¹⁰ PJM has indicated that the RTO provides network model data, on a limited basis, only to the transmission owners. The Market Monitor does not support the wider dissemination of the detailed market models to market participants. There is no efficiency gain and there are significant potential market power issues. Just as market participants have no reason to know the costs of their

⁹ See *2016 Annual State of the Market Report for PJM*, v. 2, at 512.

¹⁰ See NOPR at P 101.

competitors, market participants have no reason to be provided the details of the market models in order to be able to compete effectively. Commission rules prohibit Transmission Owners from providing nonpublic network model data to an affiliate.¹¹

II. CONCLUSION

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

Respectfully submitted,



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¹¹ See 18 CFR Part 37.