

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

PJM Interconnection, L.L.C.)	Docket No. ER12-1204-000
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)	

**ANSWER AND MOTION FOR LEAVE TO ANSWER
OF THE INDEPENDENT MARKET MONITOR FOR PJM**

Pursuant to Rule 212 and 213 of the Commission's Rules and Regulations,¹ Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM² ("Market Monitor"), answers and requests leave to answer the answer to protests and comments filed by PJM on April 10, 2012 ("April 10th Answer").

PJM's Answer does not resolve the issues raised by the Market Monitor in its protest filed March 26, 2012 protest ("March 26th Protest") about a number of flawed or undeveloped market design elements in PJM's proposal for compliance with Order No. 755,³ dated March, 2012 ("March 5th Proposal"). The April 10th Answer instead underscores that the March 5th Proposal does not adequately specify the details or concepts of the new market design. Accordingly, the Market Monitor requests that the Commission direct that PJM, in consultation with its stakeholders, submit an additional compliance filing that fully develops the proposed market design, including tariff revisions, and correct flawed aspects

¹ 18 CFR § 385.212 & 385.213 (2011).

² PJM Interconnection, L.L.C., a Regional Transmission Organization. Capitalized terms herein are not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff ("OATT").

³ *Frequency Regulation Compensation in the Organized Wholesale Power Markets*, Order No. 755, 137 FERC ¶ 61,064 (2011).

of the March 5th Proposal identified in the March 26th Protest. The Market Monitor believes that a least ninety days are necessary to accommodate stakeholder input and to develop a sufficiently detailed proposal and tariff revisions.

I. ANSWER

The April 10th Answer fails to correct underdeveloped or flawed elements included in the March 5th Proposal which must be addressed in the market design included in the tariff.

The April 10th Answer does not clarify whether it intends to make use of a unit specific benefit factor based on a unit's relative location in the supply stack or the marginal benefit factor of the last fast resource cleared for purposes of optimization and settlement.

The proposed determination of performance offers and the performance clearing price continues to be unclear and appears inconsistent with Order No. 755 requirements that prices reflect the incremental costs of providing work. Specifically, the March 5th Proposal appears to confuse the incremental cost of performance with the total payments for performance per unit of capability.

The April 10th Answer does not substantiate PJM's claims, with regard to shoulder hour opportunity costs and the marginal pricing of capability, that its Regulation Market Design Proposal will eliminate the need for make-whole payments. PJM recognizes the possibility that under collection may occur in its model and has pledged to submit a report at the end of six months that "will detail the impacts of the Proposed Revisions on the compensation for providing regulation service and opportunity costs for this six month

period.”⁴ This is an insufficient response to the issues raised. The market should be designed to address potential issues prior to implementation.

In addition, PJM continues to argue that to complete elimination of make-whole payments, “PJM must jointly optimize and price energy, reserves, and regulation on a five-minute basis to eliminate the make-whole payment.”⁵ In other words, PJM suggests that the market design must eliminate the use of estimated opportunity costs for purposes of scheduling and pricing regulation and the market design cannot make use of actual hourly integrated prices to determine the market price for regulation. However, these positions on scheduling and pricing are inconsistent with the actual March 5th Proposal, which determines hour long regulation assignments prior to the operating hour on the basis of expected costs, including estimated opportunity costs based on estimated system conditions, and determines regulation compensation on an after the fact hourly integrated price basis.⁶

The Market Monitor agrees that elimination of out of market payments is an important objective of the regulation market redesign. However, resolution of the out of market payments issue does not require jointly optimizing regulation, reserve and energy every five minutes. Resolution of the out of market payments issue requires only that actual five minute prices, rather than forecasted prices, be used to determine the regulation

⁴ April 10th Answer at 21, 23 & 25.

⁵ April 10th Answer at 14.

⁶ April 10th Proposal at 13–14.

clearing price, cost-based regulation offers and the actual opportunity costs associated with providing regulation capability.

The Market Monitor believes that the March 5th Proposal represents a significant step in the right direction. However, the March 5th Proposal needs clarification and refinement before it successfully addresses the design criteria and policy concerns raised in Order No. 755 and before it can be considered a complete, internally consistent market design.

A. The March 5th Proposal Continues to Lack Specifics

In its April 10th Answer, PJM claims that it's "Proposed Revisions contain sufficient detail to allow the Commission to make a determination that the Proposed Revisions will ensure that the capability and performance payment will be market-based and the clearing prices are uniform in accordance with the Commission's directives in Order No. 755."⁷

PJM states:

"While true the Proposed Revisions do not contain the detailed calculations, the Proposed Revisions strike the proper balance between the requirements required by the Commission in Order No. 755 and the flexibility needed to develop, and maintain, the details of the market clearing mechanisms for the capability and performance payments based on the factors listed in the Tariff and Operating Agreement as PJM and its stakeholders gain experience with the revised compensation methodology."⁸

PJM states that "Where proposed tariff language contains the basic methodology, criteria, and assumptions required to meet the Commission's directives in an Order, the

⁷ April 10th Answer at 9.

⁸ April 10th Answer at 9–10.

Commission has left the specific implementation details to be determined during stakeholder proceedings.”⁹

The Market Monitor disagrees. PJM’s proposal continues to lack the specifics on the basic methodology, criteria and assumptions needed to draw a conclusion that it will satisfy Order No. 755 requirements and sufficient to determine whether the market will work in the manner suggested. The April 10th Answer does not address the proposal’s shortcomings in this regard. Key areas where specifics are needed include: the interaction between performance offers and the performance clearing price used to clear and settle the market; and the exact nature, not value, of the benefits factor used in optimization and settlement. The lack of specificity leaves much of the proposed market design unnecessarily vague on critical features, where it should be clear and concise for Commission consideration. As indicated in the protests of other participants¹⁰ and as admitted in the April 10th Answer,¹¹ in some instances the lack of specificity is in areas that are still in development. It is not appropriate to propose that fundamental features of the market design be established in manuals, which do not require FERC approval.

1. The Exact Nature of the Benefits Factor Used in Optimization and Settlement Needs to be Made Explicit: Marginal or Unit Specific.

The March 5th Proposal and April 10th Answer fail to clarify the exact nature of the Benefits Factor that PJM proposes to use in optimization and settlement of the regulation

⁹ April 10th Answer at 10.

¹⁰ Motion to Intervene and Comments of Electricity Storage Association (“ESA”) filed in ER12-1204-000 (March 26, 2012) at 10.

¹¹ April 10th Answer at 6.

market. PJM claims that the Market Monitor's concern is that, "the lack of specificity pertaining to the benefits factor will result in clearing prices that will not be uniform or market-based." This does not correctly characterize the issue. The issue, as indicated in the March 26th Protest, is that the March 5th Proposal and April 10th Answer do not provide enough information to make a determination either way. PJM claims that the Market Monitor's concern is with regard to the specific numerical value of the benefit factor(s) used, as opposed to how the benefit's factor will be used in the optimization and settlement. PJM states:

"Contrary to the IMM's position, the Proposed Revisions will not only ensure that a performance clearing price that has been adjusted by the benefits factor is uniform and market-based it will also provide the flexibility to revise the benefits factor in the PJM Manuals from time to time based on the operational experience and characteristics of the regulation signals and the resources providing regulation." ²⁷

Contrary to PJM's characterization, the Market Monitor agrees that PJM should have the flexibility to revise the benefits factor based on operational experience and the characteristics of the regulation signals and the resources providing the regulation. This is not the issue.

As raised in the Market Monitor's March 26th Protest, the relevant issue is the fundamental market design question of whether an average benefit factor, that is a unit specific benefit factor based on the unit's position in the supply stack, or the marginal benefit factor will be used to settle and clear PJM's proposed market.

The Market Monitor is concerned that the March 5th Proposal appears to base market optimization and settlement on unit specific assignments of benefit factors rather than the

use of the marginal or incremental benefit factor of the last resource combination cleared.¹² The April 10th Answer reinforces this interpretation in its response to ESA's and Beacon Power's concern about PJM's unclear use of the Benefit Factor in the optimization and settlement process.¹³ The March 5th Proposal appears to assign a unit specific benefit factor based on a unit's relative position in the resource stack and use the unit specific benefit factor to determine payment. Under this approach, fast resources that are taken first (lower price offers) from the supply stack would be treated as displacing more slow resources than fast resources that are taken later (higher price) in the stack for purposes of settlement. This is problematic because it is not an efficient market outcome when it is not based on the marginal offer.

As noted in the Market Monitor's March 26th Protest and the March 5th Proposal, the KEMA study showed decreasing rates of substitution between fast and slow resources as the proportion of fast resources increases. This means that the rate of substitution decreases as the amount of fast resources used increases. This means that the benefit of every fast resource being used, not just the last one, is declining as more fast resources are added to the regulation commitment. The correct way to include this result in the optimization is to reflect the marginal rate of substitution when determining the relative substitutability of

¹² March 5th Proposal at 9. "PJM's proposed performance based two part methodology will appropriately compensate each regulation resource for the benefit it provides to system control and meet the goals set forth by the Commission in its Order No. 755. This will incent the highest value resources to participate in PJM's regulation market which will in turn lead to a lower overall regulation requirement to achieve reliable system control."

¹³ April 10th Answer at 5-7.

fast and slow resources and therefore the correct market equilibrium. The correct approach results in a uniform price that reflects the marginal value of the resources being used.

Use of the unit specific unit benefit factor would result in the equivalent of a pay as bid outcome rather than a single clearing price outcome. A failure to reflect the marginal rate of substitution would result in suboptimal ratios of fast to slow resources in the market solutions. The use of unit specific benefit factors for settlement purposes would result in non-uniform, discriminatory compensation among fast resources that cleared in the same market. This would result in a violation of Order No. 755's requirement that prices be uniform and market based, not administrative and discriminatory.¹⁴

While the nature of the benefits factor was discussed in the stakeholder process, the PJM filing is not explicit, even in general terms, about the mechanics of the market solution and therefore about the impact of the benefits factor. The exact nature of the benefits factor in the context of optimization and settlement needs to be made explicit. The benefits factor should be the, marginal rate of substitution to ensure an efficient market clearing process and non-discriminatory outcomes. This is a fundamental question of market design that must be in the tariff rules that define this market and not a detail to be addressed in the manuals.

2. The Determination of Performance Offers and the Performance Clearing Price Needs Clarification.

The proposed determination of performance offers and the performance clearing price continues to be unclear and appears inconsistent with Order No. 755 requirements

¹⁴ Order No. 755 at PP 11 & 107.

that prices reflect the incremental costs of providing work. Specifically, the March 5th Proposal appears to confuse the incremental cost of performance with the total payments for performance per unit of capability. PJM claims that “the IMM offers an incomplete example in arguing that PJM should provide additional details describing the interaction between the performance offer and performance clearing price.”¹⁵ PJM claims that “[t]he IMM’s example is based on an incomplete equation (the Performance Payment equals the Performance Clearing Price times the cleared capability megawatts).”¹⁶ PJM claims:

“The Compliance Filing contains the proper elements of the equation and, therefore, precludes the possibility that the IMM’s example could actually occur. These elements include the Performance Clearing Price, the cleared megawatts of regulation capability, the ratio of change in megawatt per megawatt of capability, and the accuracy of the resource relative to the regulation control signal.”¹⁷

PJM argues that “[b]y excluding these last two additional elements used to determine the performance compensation, the IMM’s example erroneously portrays an outcome that by definition cannot occur.”¹⁸

The April 10th Answer mischaracterizes the example provided in the March 26th Protest. Order No. 755 requires that the performance payment for work reflect prices based on market based resource bids “that reflect the cost of providing the service.”¹⁹ Order No. 755-A further clarifies that the performance payment must be based on “a market-based

¹⁵ April 10th Answer at 11.

¹⁶ April 10th Answer at 11.

¹⁷ April 10th Answer at 11

¹⁸ April 10th Answer at 12

¹⁹ Order No. 755 at P 107.

price, rather than an administratively-determined price, on which to base the frequency regulation payment.”²⁰ The Order No. 755 requirements with regard to the Performance Clearing Price imply that the offer price and therefore clearing price of performance should reflect the incremental cost of following the regulation signal (actual mileage), which is then used to compensate resources for work actually done.

The April 10th Answer suggests that the “ratio of change in megawatt per megawatt of capability” reflects the actual work done per MW of capability.²¹ This requires two things for it to be true. First, the ratio of change per MW of effective capability must be constant across resource types (fast and slow). However, this will not be true because the the March 5th Proposal provides for two types of resources to be used for regulation. Each of these resource types will have a separate signal and a separate assumption regarding the amount of performance per MW of effective MW. Second, the purported relationship between capability and work is only maintained by resource type if the ratio of change per MW of effective capability is based on the actual signal for that class in each hour. This is not true if “the ratio of change in megawatt per megawatt of capability” does not reflect actual mileage per MW of effective capability per class in the hour. In actual practice, system conditions vary across hours which cause the regulation control signal(s) to vary across hours, thereby causing different levels of work per MW of capability to vary across hours.

PJM has not clarified whether it intends to use a fixed or actual ratio of change in MW per MW of capability for purposes of determining the price for performance in terms

²⁰ Order No. 755-A at P 2.

²¹ April 10th Answer at 12

of performance per MW of capability. PJM's discussion of its calculation, as presented, appears to assume a fixed relationship between a MW of cleared capability and the actual amount of work done for fast and slow resources. This is problematic to the extent that the amount of work actually done in any given hour (the actual total mileage of the regulation signal and the unit's effectiveness in following the signal) will vary according to system conditions and unit performance. Using a fixed ratio between capacity and mileage based on historical performance would result in over and under collection in any given hour.

Further, PJM has not explained how a clearing price for performance based on some average cost per MW of capability (assumed or actual) meets Order No. 755's requirement that prices reflect the incremental cost of providing performance (the marginal cost per unit of work for the marginal unit). PJM has not explained why a calculated average price of performance from the most expensive resource is more appropriate than a marginal price for performance. The example provided in the Market Monitor's March 26th Protest illustrates this issue.

Contrary to PJM's assertion regarding the example, "the ratio of change in megawatt per megawatt of capability", in terms of assumed ratios of change per megawatt of effective capacity, by class, were specifically included to illustrate the point. In the example, "the accuracy of the resource relative to the regulation control signal" was assumed to be 1 (100%), and therefore irrelevant. In the example, resource A was a "fast" resource with an assumed ratio of work to effective MW of 10 to 1. Resource B was a "slow" resource with an assumed ratio of work to effective MW of 1 to 1. In the example resource A and B each had 1 MW of effective capability. Both resources had zero costs for capability (no lost opportunity cost (LOC)) and both resources have an incremental cost of work (dollars per mile of movement) of \$1. Based on a total cost approach, Resource A had a performance

offer of \$10 and Resource B had a performance offer of \$1. Assuming Resource A sets the Performance Clearing Price per unit of capability, using PJM's proposed payment for performance calculation ("equal to the Performance Clearing Price times the cleared capability megawatts"²²), the total payment to Resource A would be \$10 and total payment to Resource B would be \$10 (both resources have 1 MW of effective capability).²³

Based on an incremental cost of work approach, the price per unit of work is \$1 and payment for performance would be based on work done times \$1 per mile of movement. Under this more appropriate incremental cost approach, Resource A would be paid \$10 and Resource B would be paid \$1.

The Market Monitor's concerns remain valid. The proposed determination of performance offers and the performance clearing price continues to be unclear and appears inconsistent with Order No. 755's requirements that prices reflect the incremental costs of providing work. These are fundamental issues of market design and not details to be addressed in the manuals. The March 5th Proposal needs to detail, explain and defend the interactions between the incremental cost of work and the Performance Clearing Price in the context of its proposed design. The March 5th Proposal is not clear about the relationship among performance offers, the Performance Clearing Price and the payment for performance and the incremental cost of performance.

²² March 5th Proposal at 11.

²³ This assumes benefit factors of 1, etc.

B. The March 5th Proposal Will Not Eliminate the Need for Make Whole Payments

PJM has provided insufficient detail in its March 5th Proposal and in its April 10th Answer to substantiate its claims, with regard to shoulder hour opportunity costs and marginal pricing of capability, that its regulation Market design proposal will eliminate the need for make-whole payments. PJM recognizes the possibility that under collection may occur in its model and has pledged to submit a report at the end of six months that “will detail the impacts of the Proposed Revisions on the compensation for providing regulation service and opportunity costs for this six month period.”²⁴ This is not sufficient. The market should be designed to address identified issues in advance.

1. PJM’s Proposed Regulation Market Design Would Result in Prices That Do Not Reflect the Incremental Cost of Regulation and Will Not Eliminate the Need for Make Whole Payments.

In response to the Market Monitor’s concerns that PJM’s proposed market design, which calculates the capability clearing price as a residual, would result in administrative prices that do not reflect the incremental cost of regulation and will not eliminate the need for make whole payments, PJM states:

The total regulation market-clearing price (the combination of the performance clearing price and capability clearing price) is paid to each unit. While true the capability clearing price is a residual value that may not contain the marginal unit’s opportunity costs, the total compensation paid to each resource for providing regulation service (i.e., the total regulation market-clearing price) *does* constitute the marginal unit’s opportunity costs because the total regulation market-clearing price, which is paid to the

²⁴ April 10th Answer at 21, 23 & 25.

market participants via the performance clearing price and capability clearing price, is set using the highest ranked resource that clears.²⁵

While PJM takes issue with the Market Monitor's example used to illustrate the issue, PJM concedes that due to the use of a residual determination, rather than a marginal resource offer setting the price for capability, "it is theoretically possible that PJM's Proposed Revisions will not eliminate the need for make-whole payments."²⁶

With regard to the example from the Market Monitor's protest, PJM claims:

"The scenario presented by the IMM is operationally unrealistic because the input to the regulation control signals (i.e. PJM's ACE) drives both the fast and slow regulation signals in such a way that the signals tend to remain proportional. Based on this proportionality and for the reasons described in the Compliance Filing, PJM believes that the Proposed Revisions in the Market-based Pricing Option will completely eliminate the make-whole payments and compensate regulation resources for all costs." Page 20-21

PJM's premise that fast and slow regulation signals will "tend to remain proportional" is not supported. Even if such a relationship were true on average, a "tendency" to remain proportional would indicate numerous hours where the assumed portion would be incorrect. More importantly, the March 5th Proposal depends on an administrative, residual price for capability rather than an actual incremental cost of capability. Combined, these identified issues create two problems: the capability price will not reflect the actual incremental cost of providing regulation service; the residual based market result may not cover the costs of units providing regulation service.

²⁵ April 10th Answer at 20 (emphasis in original).

²⁶ April 10th Answer at 20.

Order No. 755 requires that regulation markets result in uniform, market based prices that reflect the actual, not forecasted, incremental cost of providing regulation services. For regulation capacity, “the uniform clearing price must be market-based, derived from market-participant bids for the provision of frequency regulation capacity.”²⁷ Further, Order No. 755 makes clear that “(t)his payment must be a uniform payment to all cleared resources, and must be a payment that includes the marginal unit’s opportunity costs.”²⁸ This latter point, that the payment must include the marginal unit’s actual opportunity cost is important, as it is this feature of the capacity offers, and the resulting capacity market price, that eliminates out of market make whole payments that, in part, cause discriminatory market results.

As presented, PJM’s proposed methodology for calculating and setting the Total Regulation Market-clearing Price, the Performance Clearing Price and the Capability Clearing Price is not consistent with the Commission’s Regulation market design criteria. The March 5th Proposal to calculate the Capability Clearing Price as a residual generated by subtracting the highest adjusted performance cleared offer is not consistent with Order No. 755’s directive that regulation prices must be uniform, market based and reflect the incremental cost of providing regulation services, including actual, not estimated, opportunity costs. As a result, PJM’s proposed regulation market design will not eliminate the need for make whole payments, even with the use of actual ex post opportunity costs in the capacity based offers.

²⁷ Order No 755-A at P 2.

²⁸ *Id.*

The March 5th Proposal does not provide a market based capability result, on the basis of incremental cost to provide each service, nor is the total price reflective of the marginal cost to provide regulation.²⁹ The March 5th Proposal provides a “total incremental cost” price, in the form of Total Regulation Market-clearing Price, that is apportioned administratively between capability and performance. In determining the Capability Clearing Price, PJM proposes to calculate the regulation capability clearing price by subtracting the Performance Clearing Price from the Total Regulation Clearing Price, where the Regulation Performance Clearing Price is based on the highest adjusted performance offer of the resources that cleared in step one in the unit commitment.³⁰ While the capability offers of resources are reflected in the Total Regulation Clearing Price, this methodology of determining the Capability Clearing Price as a residual will not reflect the actual incremental cost of providing capability, including actual opportunity cost.

In some cases, depending on how the performance price is set and whether performance is actually compensated on the basis of expected or actual required work done in the hour, determination of a residual Capability Clearing Price could result in under collection of capability reservation costs.³¹

²⁹ Whether the Total Regulation Market-clearing Price reflects the total incremental cost of regulation service in a given hour will depend on (i) the nature of the benefit factor used in the final market design and (ii) the final nature of the unit specific performance offers used in the market.

³⁰ March 5th Proposal at 13.

³¹ Under the proposed two offer methodology, PJM will: (1) include a resource’s lost opportunity costs, accuracy-adjusted capability offer and accuracy-adjusted performance offer to determine the incremental total cost for each resource in the ranking and clearing process with the highest ranked resource that clears setting a total regulation market-clearing price (“Total Regulation Market-clearing Price”); (2) calculate a regulation performance clearing price based on the highest adjusted performance offer of the resources that cleared in step one (the “Performance Clearing Price”); and

2. The Proposed Revisions Will Not Adequately Compensate Resources for All Opportunity Costs, Including Shoulder Hour Opportunity Costs

In their protest, Dominion requested shoulder hour based lost opportunity cost based payments be retained in PJM's regulation market.³² PJM argues that the elimination of the "shoulder hour opportunity costs is necessary to implement co-optimization and real-time pricing."³³ PJM basis for this argument is that PJM cannot calculate shoulder-hour on a real time basis. PJM then argues that specific compensation of shoulder related costs are not needed because "PJM believes that the Proposed Revisions will adequately compensate resources for all opportunity costs, including shoulder hour opportunity costs, because the resulting prices for providing frequency regulation service will be sufficiently high to ensure that each regulation resource receives the its costs to provide regulation service."³⁴

The Market Monitor agrees with Dominion that the market design should account and compensate for legitimately incurred costs of providing service. Where possible, these incurred costs should be collected through the market, via transparent market signals reflecting the incremental cost of service.

Shoulder hour opportunity costs are real costs imposed on participants who participate in PJM's regulation market. While the March 5th Proposal will, through the use

(3) calculate a regulation capability clearing price by subtracting the Performance Clearing Price from the Total Regulation Clearing Price (the "Capability Clearing Price").³¹

³² Motion to Amend Protest and Comments of Dominion Resources Services, Inc. in Docket No. ER12-1204-000 (March 27, 2012) at 2.

³³ April 10th Answer at 23.

³⁴ April 10th Answer at 23.

of actual instead of estimated LMP, better reflect the actual cost of regulation and thereby reduce the most significant source of out of market payments in PJM's current Regulation Market, the March 5th Proposal does not eliminate the need for uplift related to shoulder costs. Without a mechanism to include shoulder costs in the market clearing price, there will be, by definition, hours where the market revenues will not always be sufficient to cover shoulder costs. PJM should address this problem directly in its market design.

C. Five Minute Optimization Is Irrelevant to this Proceeding.

PJM continues to argue, without evidence, that "PJM must jointly optimize and price energy, reserves, and regulation on a five-minute basis to eliminate the make-whole payment."³⁵ In its April 10th Answer, PJM attempts to rebut the Market Monitor's point that "all that is needed to resolve the issues raised (sic) are the use of actual opportunity costs, rather than forecasted opportunity costs in the determination of regulation clearing price."³⁶ PJM adds that "the IMM suggests re-creating the clearing prices after the market hour closes based on the actual locational marginal prices ("LMPs")."³⁷ PJM goes on to state "The IMM's proposal is not feasible because the implementation of such a proposal renders meaningless the regulation market price signals that PJM would calculate during real-time operations." PJM argues:

Such a pricing structure would provide no price transparency and would not allow the asset owner to understand and rationalize the value that its resource is providing in real-time. This opacity eliminates its ability to make near term deployment decisions to maximize utilization of its asset. The PJM

³⁵ April 10th Answer at 14.

³⁶ April 10th Answer at 12.

³⁷ April 10th Answer at 12.

markets have demonstrated that transparent market price signals in the energy and ancillary services markets create positive incentives that create a partnership between the RTO and its market participants in responding quickly and efficiently to reliability needs through visible energy and ancillary service price signals.³⁸

The Market Monitor disagrees with PJM's characterization of the argument and with PJM's conclusion.

The March 5th Proposal indicates that regulation commitments will be made prior to the operational hour, based on forecasted opportunity costs and forecasted conditions, not as part of a five minute joint optimization of reserves, regulation and energy.³⁹ PJM also notes that "(c)ommitment of resources sufficiently ahead of the timeframe for which they provide regulation service ensures that resource owners have sufficient time to position their resource to regulate in the upcoming hour."⁴⁰ Pricing of regulation, energy and reserves would happen on the basis of actual five minute LMP based opportunity costs, and settlement would occur on an hourly integrated (hourly average price) basis, determined after the close of the hour. The April 10th Answer does not dispute this.

³⁸ April 10th Answer at 12–13.

³⁹ "Section 1.11.4(b) of Schedule 1 of the Operating Agreement and its proposed revisions thereto satisfy this directive by requiring that PJM select the regulation resources that clear on the basis of: (1) each resource's regulation offer and the estimated opportunity cost of the resource providing regulation service as calculated by PJM; and (2) in accordance with PJM's obligation to minimize the total cost of energy, operating reserves, regulation, and other ancillary services. PJM estimates each offeror's opportunity costs on the basis of the expected value of the energy sales that would be foregone or uneconomic energy that would be produced by the resource in order to provide regulation. Moreover, the proposed Total Regulation Market-clearing Price established for each hour includes the highest sum (from among the selected units) of a resource's accuracy-adjusted capability offer, accuracy-adjusted performance offer, and estimated opportunity costs." March 5th Proposal at 13–14.

⁴⁰ March 5th Proposal at 23.

Further, PJM is not proposing five minute settlement. PJM is not proposing within hour commitment of regulation. PJM is not proposing replacing fast and slow regulation signals with a five minute regulation price to instruct regulation within the hour. PJM will be making use of a fast and slow signal to direct regulation output. PJM will continue to make use of hour long regulation commitments based on a forecasted LMP. This means that under PJM's optimization proposals, regulation assignments would be held constant within the operational hour. Based on this, all that is needed to resolve the issues raised are the use of actual opportunity costs, rather than forecasted opportunity costs in the determination of the regulation clearing price.

The Market Monitor agrees that elimination of out of market payments is an important objective of the regulation market redesign. However, resolution of the out of market payments issue does not require jointly optimizing regulation, reserve and energy every five minutes. PJM's actual proposal does not make use of within hour cooptimization of regulation with reserves and energy. Resolution of the out of market payments issue requires only that actual five minute prices, rather than forecasted prices, be used, in conjunction with regulation offers, to determine the hourly integrated regulation clearing price.

II. MOTION FOR LEAVE TO ANSWER

The Commission's Rules of Practice and Procedure, 18 CFR § 385.213(a)(2), do not permit answer to answers or protests unless otherwise ordered by the decisional authority. The Commission has made exceptions, however, where an answer clarifies the issues or

assists in creating a complete record.⁴¹ In this answer, the Market Monitor provides the Commission with information useful to the Commission's decision-making process and which provides a more complete record. Accordingly, the Market Monitor respectfully requests that this answer be permitted.

III. 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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⁴¹ See, e.g., *N.Y. Indep. Sys. Operator, Inc.*, 121 FERC ¶61,112 at P 4 (2007) (answer to protest accepted because it provided information that assisted the Commission in its decision-making process); *PJM Interconnection, L.L.C.*, 119 FERC ¶ 61,318 at P 36 (2007) (accepted answer to answer that "provided information that assisted ... decision-making process"); *California Independent System Operator Corporation*, 110 FERC ¶61,007 (2005) (answer to answer permitted to assist Commission in decision-making process); *New Power Company v. PJM Interconnection, L.L.C.*, 98 FERC ¶ 61,208 (2002) (answer accepted to provide new factual and legal material to assist the Commission in decision-making process).

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Dated: April 25, 2012

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 25th day of April, 2012.



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