PJM’s Response to the 2012 State of the Market Report

5.10.2013

PJM Interconnection
## Contents

- Introduction ............................................................................................................................................................................. 1
- PJM Response to IMM Recommendations from the 2012 State of the Market Report .......................................................... 4
  - Energy Market Recommendations ..................................................................................................................................... 4
  - Capacity Market Recommendations .................................................................................................................................. 4
  - Demand Response Recommendations .............................................................................................................................. 8
  - Planning Recommendations .................................................................................................................................................. 9
  - Ancillary Services Recommendations ................................................................................................................................ 9
  - Operating Reserves Recommendations .......................................................................................................................... 10
  - Interchange Transactions Recommendations .................................................................................................................. 12
  - FTR and ARR Recommendations .................................................................................................................................... 13
- PJM Response to the Conclusion Regarding the Regulation Market ................................................................................... 14
Introduction

The 2012 State of the Market Report issued by PJM’s Independent Market Monitor (IMM) provides an assessment of market performance and recommendations aimed at enhancing PJM’s market design or market performance.¹ The market monitor performs an important role in providing an independent assessment of market performance and provides valuable insights in its conclusions and recommendations. The purpose of this document is to provide to stakeholders PJM’s evaluation of each substantive recommendation offered by the IMM.

In the 2012 State of the Market Report, the IMM concludes that the state of PJM’s markets is good.² The IMM concludes that the PJM Energy, Capacity, Synchronized Reserve, Day-Ahead Scheduling Reserve and Financial Transmission Rights (FTR) markets were competitive. PJM believes the observed market results support these conclusions. The IMM also concludes the results of the Regulation Market in place through October 1, 2012 were not competitive. PJM does not believe the observed market results support this conclusion. To the contrary, the market results demonstrate competitive results. PJM believes there is ample evidence of competitive market behavior in the regulation market and the IMM conclusion is based on the IMM’s disagreement with opportunity cost calculation rules that were endorsed by members and approved by the FERC. The IMM drew no conclusions regarding the Regulation Market enhancements to implement performance-based regulation payments put in place on October 1, 2012.

In the 2012 State of the Market Report, the data, information, analysis, and recommendations are organized by market type (Energy, Capacity, Ancillary Services and FTRs) and by specific topic area that touches on PJM markets (Operating Reserves, Demand Response, Generator Net Revenue, Environmental and Renewable Energy Regulation, Interchange Transactions, and Congestion and Marginal Losses). This year the IMM has assigned a priority to each of its recommendations. PJM welcomes this addition and hopes it will be enhanced in the future by including consideration of materiality and priority with associated rationales.


² 2012 SoM Report at 1.
PJM considers a useful way to prioritize the recommendations provided by the IMM in the 2012 State of the Market Report is in comparison to the impact on PJM Wholesale Market Cost as shown in Figure 1.

Figure 1: Components of PJM Total Wholesale Power Cost in 2012

- PJM’s Energy Market accounted for nearly three-quarters (73.7 percent) of total wholesale market costs in 2012.
- The PJM Reliability Pricing Model (RPM) Capacity Market accounted for 12.6 percent of total wholesale power costs in 2012.
- Transmission Charges accounted for 9.8 percent of total wholesale power costs in 2012.
- Ancillary services and operating reserves have been emphasized by the IMM as an area for further improvement. These services, in total, accounted for 3.1 percent of total wholesale power costs in 2012.

Over 90 percent of the IMM recommendations pertain to areas comprising less than 20 percent of total wholesale power market costs. PJM believes this trend supports PJM’s observation that the markets have entered a period of maturity where further changes to market design and reliability planning are addressing areas that have lower cost impacts when examined in the context of wholesale power costs. The examination of these areas by PJM and the IMM are important as they are essential to maintaining operating reliability through ancillary service markets, resource adequacy through the RPM Capacity Market, and transmission reliability through the transmission planning process that is informed by long-term investment decisions made by market participants. However it is also important that any recommendations or changes proposed to PJM’s markets be carefully considered given the emphasis on ensuring reliability through markets. PJM believes it would be helpful in future reports to provide an analysis of data and market results that provide evidence of a problem or potential problem, and an analysis to support understanding of their market and reliability impacts.

3 Member’s Committee Markets Report, April 23, 2012 at http://www.pjm.com/~/media/committees-groups/committees/mc/20120423/20120423-reports-item-03a-markets-report.ashx
PJM staff has reviewed the recommendations provided by the IMM and has developed specific responses. The PJM response also indicates instances where recommendations and conclusions made by the IMM require further analysis to better define the problem to be solved, and more clearly delineate the market and reliability implications of the recommended solutions. The 2012 State of the Market Report provides a large volume of data and information regarding PJM’s Markets and can be a useful reference for PJM staff and market participants. PJM staff believes it would be useful to tie the data, information, and analysis contained in the 2012 State of the Market Report together into an easy to follow narrative that explains why there is a problem and how the recommendations solve the identified problem and promote more efficient and cost-effective market outcomes that support reliability goals.

A number of recommendations made by the IMM have been repeated in each of the past three State of the Market Reports. Some of these recommendations have already been addressed or are in discussions within the stakeholder process. Several of the recommendations have been discussed by stakeholders in the past and have not been adopted or have been decided in a different direction by the FERC. A more detailed PJM response to the conclusions and recommendations from 2012 State of the Market Report is provided below.
PJM Response to IMM Recommendations from the 2012 State of the Market Report

Energy Market Recommendations
The IMM has offered two recommendations regarding the Energy Market.

IMM Recommendation: Elimination of Frequently Mitigated Unit and Associated Unit adders.

**PJM Response** – PJM staff does not believe the IMM has provided sufficient evidence or analysis that supports this recommendation. PJM staff recommends the IMM conduct a more comprehensive analysis which examines whether the resources eligible for FMU’s are covering their going-forward costs which can inform further stakeholder discussion. In order to understand the consequences of this recommendation, the timing difference between energy market revenue offset and capacity market revenue will need to be evaluated. However, nothing in this response should indicate a particular PJM position as to the application of the FMU adders to specific fact situations.

IMM Recommendation: Revision of the definition of maximum emergency status for generating units.

**PJM Response** – PJM believes this recommendation is made moot by the implementation of shortage pricing rules on October 1, 2012. The impact and importance of Maximum Emergency as an event impacting pricing has been superseded by shortage pricing.

Capacity Market Recommendations
The IMM recommendations related to the capacity market are generally related to the obligations of capacity resources and the definition of what it means to be a capacity resource. Many recommendations related to demand response are also tied directly to the RPM Capacity Market.

IMM Recommendation: Elimination of the Short-Term Resource Procurement Target (2.5 percent demand holdback in the Base Residual Auction).

**PJM Response** – PJM disagrees with this recommendation. The short-term resource procurement target was included as a design feature of the forward capacity market to replace the Interruptible Load for Reliability mechanism in order to provide a participation mechanism for short term resources. This mechanism was also justified as an offset to forward load forecast uncertainty which was created as a result of transitioning the capacity market from a short term market to a longer term forward market. Based on analysis of RPM performance since 2007, the 2.5 percent deferred supply does not unreasonably lower capacity procurement, rather it is a mechanism to provide opportunity for short-term resource participation and to prevent systematic over procurement of capacity. Actual market performance and comparison of 3.5 year forward load forecast to actual load requirements appear to validate the deferred supply procurement mechanism. Based on this analysis, PJM does not believe there is evidence that the 2.5 percent deferred supply artificially or inappropriately suppresses forward capacity prices. In fact, the 2.5 percent deferred supply appears to be a conservative quantity of supply deferral that properly reflects the dynamics of forward load forecasting and prohibits over-procurement of forward capacity and overstatement of forward capacity prices. While PJM does not believe the historic performance justifies elimination of the 2.5 percent holdback at this time, we note the load forecast mechanism was recently changed and more analysis will be needed in the future to determine the impacts of these changes on forward load forecasting. Therefore PJM will evaluate the performance of the 2.5 percent holdback on an ongoing basis to ensure it is still performing in a manner consistent with resource adequacy requirements. PJM has performed a more detailed analysis of the forward load forecast and the 2.5 percent deferred supply mechanism which will be provided to stakeholders in a separate document.
IMM Recommendation: The definition of Demand Response resources should be made comparable to generation capacity resources to ensure that all resources provide the same value in the capacity market such as providing unlimited interruptions.

**PJM Response** – The IMM recommendation appears to assert that the limited and extended summer products be eliminated. PJM believes this recommendation cannot be defended or justified based on reliability requirements because the industry has operated and continues to operate with some form and some quantity of load management. However, as documented extensively in the recent FERC proceeding, PJM analysis indicates it is necessary to establish overall limits on the amount of limited demand response that can be cleared based on criteria. PJM has established these limits and will continue to analyze this issue. However, some stakeholders have raised equity concerns related to the disparity between generation capacity resource and demand response capacity resource obligations. When viewed from an equity perspective, there appears to be justification to increase demand resource obligations to be more comparable with generation resource obligations. PJM will work with stakeholders to discuss this issue in 2013.

**IMM Recommendation**: Address barriers to entry in a timely manner in order to help ensure that the capacity market will result in the entry of new capacity to meet the needs of PJM market participants and reflect the uncertainty and resultant risks in the cost of new entry used to establish the capacity market demand curve in RPM.

**PJM Response** – PJM agrees that unjust and unreasonable impediments to entry of new generation resources should be eliminated to the extent possible. Unfortunately, labeling a market feature as a “barrier” does not provide the level of specificity or analysis to determine if a particular market design feature is unjust and unreasonable. PJM notes the IMM did not provide specific concerns related to this recommendation; specific details and analysis supporting the recommendation would be helpful to PJM and stakeholders seeking to understand the issue. PJM is committed to working with the IMM and the PJM membership to reduce any potential barriers to new generation entry.

**IMM Recommendation**: Redefining the test for determining modeled Locational Deliverability Areas in RPM to include a detailed reliability analysis of all at-risk units.

**PJM Response** – PJM has studied at-risk units as part of the Regional Transmission Expansion Plan (RTEP) process over the past several years, and has provided that information to stakeholders. PJM has also made substantive changes to LDA modeling assumptions to improve coordination between RPM and the RTEP process. PJM does not believe additional changes to the LDA modeling are justified or appropriate at this time.

**IMM Recommendation**: Elimination of modifications to existing resources being considered as new resources for purposes of market power related offer caps or MOPR offer floors.

**PJM Response** – PJM staff disagrees with this recommendation and believes that it would be discriminatory to treat capacity differently based on the source and believes that the value of new capacity is the same regardless of whether it is new “iron in the ground” or an increase of the capacity of an existing facility. FERC has repeatedly upheld this principle in the context of PJM’s capacity market design. Additionally, the IMM has not provided sufficient analysis of the consequences of such a change or an explanation of how such a change would not open a loophole for new resources to use to avoid application of the Minimum Offer Price Rule (MOPR). One example of such a loophole could be an existing steam unit that wishes to repower to combined cycle natural gas and significantly
expand capacity. PJM believes the IMM recommendation would inappropriately exempt such a major capacity addition from the MOPR which could compromise its effectiveness.

**IMM Recommendation:** Explicit requirement that capacity unit offers into the Day-Ahead Energy Market be competitive where competitive is defined to be the short run marginal cost of the units.

**PJM Response -** PJM disagrees with this recommendation. In the PJM market, capacity resources that are deemed to present a local market power risk (i.e. those that fail the three pivotal supplier test) are subject to market power mitigation at short run marginal cost. PJM believes this recommendation would extend offer mitigation to all operating hours for any capacity resource, even when the resource has passed very conservative market power screens. PJM believes offer capping resources that have been deemed to satisfy market power screens is inconsistent with FERC’s authority and action to grant market-based rates for resources in the energy market. PJM notes the analysis of market-based offers presented in the State of the Market Report prepared by the IMM does not appear to support or justify this recommendation. PJM believes the additional, unnecessary mitigation that is recommended in a market that has been demonstrated to be operating competitively could have unintended and adverse consequences, which ultimately could create incentives for resources to limit their operational flexibility and availability to PJM, which could inhibit PJM’s ability to maintain reliable and efficient grid operation, efficient dispatch of resources and efficient operation of the energy market.

**IMM Recommendation:** Generation capacity resources should only be paid on the basis of whether they produce energy when called upon during any of the hours defined as critical. All revenues should be at risk under the peak hour availability charge.

**PJM Response –** PJM disagrees with this recommendation. The IMM has not provided PJM staff or stakeholders with analysis that justifies the recommendation or demonstrates an imminent or potential problem that threatens resource adequacy, market efficiency or grid reliability under the current set of performance incentives in RPM. PJM staff observations and detailed performance evaluations indicate that generation performance during critical peak hours is exemplary, well in excess of 90 percent. PJM has seen no evidence to indicate that the current performance penalty structure provides insufficient incentive.

**IMM Recommendation:** A unit which is not capable of supplying energy consistent with its day-ahead offer should reflect an appropriate outage rather than indicating its availability to supply energy on an emergency basis.

**PJM Response –** PJM generally agrees that if a unit is not capable of supplying energy at all, it should be reflected as an outage. However if the unit is capable of supplying the energy in an emergency, then it is appropriate to designate the energy as available under emergency operating conditions which is consistent with the operational definition of a capacity resource. For example, if a generator is experiencing operational issues or environmental limitations such that it is not capable of operating under normal economic conditions but is capable of supplying the energy in an emergency, then it is appropriate to designate the energy as available under emergency operating conditions which is consistent with the operational definition of a capacity resource. PJM believes the IMM recommendation to require outage tickets for a resource that is available under emergency conditions would remove a potentially valuable tool for PJM to maintain reliable operations under emergency conditions. PJM has experienced operational circumstances where the only viable alternative was emergency only resources. Dismissing these valuable resources at times when they are most needed is inconsistent with good utility operating practice and would impose higher costs and risks on consumers than necessary. The PJM capacity construct and accompanying energy market rules currently provide incentive for resources to maximize output in response to PJM-declared emergency
conditions; PJM believes the IMM recommendation would diminish that incentive which is detrimental to operational reliability. Moreover, the IMM has not provided an analysis of impacts to operating reliability in real-time if such a recommendation were implemented.

**IMM Recommendation:** Elimination of all Out of Management Control (OMC) outages from use in planning or capacity markets. MMU recommends that pending elimination of OMC outages, that PJM review all requests for Out of Management Control (OMC) carefully, implement a transparent set of rules governing the designation of outages as OMC and post those guidelines. The MMU also recommends immediate elimination of lack of fuel as an acceptable basis for an OMC outage.

**PJM Response –** PJM agrees that development of transparent rules governing OMC outages is appropriate and expects to post such rules by June 1, 2013. PJM has implemented process controls and audits for OMC outages and the number of approved OMC outages has dropped by 40% since 2008. PJM disagrees that lack of fuel be categorically eliminated as an OMC outage without consideration of specific facts and circumstances giving rise to the lack of fuel. PJM staff already reviews all requests for OMC outages carefully and many OMC codes have strict documentation requirements. With respect to lack of fuel OMC outages, PJM staff notes that if fuel supply was reasonably within the control of the resources, an OMC outage is not granted. PJM also notes that the Installed Reserve Margin (IRM) determination takes into account all outages including OMC outages. The NERC Generator Availability Data System permits OMC outages and PJM follows the NERC guidelines for such events. As noted above, and consistent with its focus on gas/electric coordination, PJM intends to clarify its rules in this area.

**IMM Recommendation:** Notification requirement for deactivations be modified to include required notification of six to twelve months prior to an auction in which the unit will not be offered due to deactivation. The purpose of this deadline is to allow adequate time for potential Capacity Market Sellers to offer new capacity in the auction.

**PJM Response –** PJM agrees with this recommendation. PJM and IMM have developed a joint recommendation to the Capacity Senior Task Force to modify must offer requirements exception request deadline from 120 days prior to start of an RPM auction to 5 months prior to start of an RPM auction.

**IMM Recommendation:** The MMU recommends that treatment of costs in RMR filings be emphasized. Customers should bear all the incremental costs, including incremental investment costs, required by the RMR service that the unit owner would not have incurred if the unit owner had deactivated its unit as it proposed. Generation owners should bear all other costs.

**PJM Response –** This issue was already considered in previous stakeholder discussions. PJM stakeholders have indicated that standardized compensation already exists in the tariff governing RMR service if the necessary capital investment for the unit in question is less than $2 million. The standardized compensation allows for the recovery of avoidable costs which by definition are costs the RMR unit would not have incurred but for the RMR arrangement. Also, some RMR units may require more significant investments requiring the matter go to the FERC as a rate case proceeding to determine the justness and reasonableness of the RMR contract submitted for approval. Given the fact-specific nature of this exercise, it is best addressed in individual filings before the FERC.

**IMM Recommendation:** MMU recommends that, as part of the MOPR unit specific standard of review, all projects be required to use the same basic modeling assumptions. That is the only way to ensure that projects compete on the basis of actual costs rather than on the basis of modeling assumptions.
PJM Response – Based on the recent FERC order which approved competitive entry exemption and a self-supply exemption in the MOPR rules, PJM agrees with the IMM that the unit-specific standard of review should now be changed to require all projects that do not qualify for the categorical exemptions to use the same basic modeling assumptions in the unit-specific request process. PJM notes the recent FERC order encouraged PJM stakeholders to consider a more standardized unit-specific review process. PJM will work with the IMM to develop recommended revisions for stakeholder consideration.

Demand Response Recommendations

The IMM recommendations with respect to Demand Response and Demand Resources touch on aspects of the PJM Energy and Capacity Markets.

IMM Recommendation: The MMU recommends that the DR program be classified as an economic program and not an emergency program.

PJM Response – PJM agrees with the intent of this recommendation which we understand is to require all Demand Response providers to submit a curtailment price in the day-ahead energy market if they are a capacity resource. PJM expects this issue to be discussed in the stakeholder process in 2013.

IMM Recommendation: The MMU recommends that actual meter load data should be provided in order to measure and verify actual demand resource behavior. The MMU recommends that compliance rules be revised to include submittal of all necessary hourly load data, and negative values when calculating event compliance across hours and registrations.

PJM Response – PJM currently receives meter load data except for certain direct load control entities for which meter data appears to be impractical. Imposing a strict metering requirement on all entities regardless of circumstance may create an unreasonable barrier to participation.

IMM Recommendation: The MMU recommends that demand side measurement and verification should be modified to accurately reflect compliance. Increases in load during event hours should not be considered zero response, but should be included for reporting and determining compliance.

PJM Response – PJM does not agree with this recommendation. Implementation of such a proposal would penalize load entities that are DR participants but are not isolated from load that does not participate in terms of capacity obligations.

IMM Recommendation: The MMU recommends that demand resources be required to provide their nodal location. Nodal dispatch of demand resources would be consistent with the nodal dispatch of generation.

PJM Response – A move to require implementation of nodal dispatch for all demand response does not appear to be consistent with aggregation requirements ordered by FERC.

IMM Recommendation: The MMU recommends that shutdown cost should be defined as the cost to curtail load for a given period that does not vary with the measured reduction, or for behind the meter generators, should be equivalent to the start cost defined in Manual 15.

PJM Response – Stakeholders agreed in 2012 to define demand response shutdown costs for the Synchronized Reserve Market as zero and will potentially revisit those rules in the future if it becomes possible to more clearly
quantify those costs. It was acknowledged at the time that there were no shutdown costs defined in Manual 15 for demand response resources, but there was little stakeholder interest in addressing that issue.

**IMM Recommendation:** The MMU recommends that the testing program be modified to require verification of test methods and results. Tests should be initiated by PJM without prior scheduling by CSPs, in order to more accurately model demand response during an emergency event.

**PJM Response** – This issue was reviewed in the Capacity Senior Task Force but eventually dropped due to a lack of stakeholder interest in addressing it. Stakeholders may want to consider re-evaluation of testing procedures as the frequency of demand response dispatch increases in order to evaluate the impact of repeated demand response utilization on participation levels.

**Planning Recommendations**
The IMM has offered one recommendation regarding transmission planning.

**IMM Recommendation:** The MMU recommends that a review process be created to ensure that projects are removed from transmission queues, if they are no longer viable and no longer planning to complete the project.

**PJM Response** – Provided that a project is meeting the financial milestones required, PJM has no way of knowing or predicting that a project is no longer planned to be completed by the developer. PJM agrees that the issue should be addressed, but any process should be based on clear milestones rather than a subjective review process.

**Ancillary Services Recommendations**

**IMM Recommendation:** The DASR Market rules should be modified to incorporate the application of the three pivotal supplier test.

**PJM Response** – PJM agrees with the IMM that this issue is a low priority item given the near-zero clearing prices and minimal impact of the Day Ahead Scheduling Reserve Market on overall consumer costs. Given the low materiality of this item, PJM does not believe stakeholder consideration of this issue is warranted at this time. PJM notes the IMM’s analysis reports that at no time did the DASR market fail their after-the-fact Three Pivotal Supplier test in 2012 despite its reporting of seven high load days and forty high load hours which appears to further confirm the low materiality of this item.

**IMM Recommendation:** The MMU recommends that the definition of opportunity cost be consistent across all markets and should, in all markets, be based on the offer schedule accepted in the market. This would require a change to the definition of opportunity cost in the Regulation Market.

**PJM Response** – PJM stakeholders discussed this issue extensively in the Market Implementation Committee in 2012 and elected to postpone acting on this issue.

**IMM Recommendation:** The MMU recommends that the Regulation Market design evaluate and compensate RegA and RegD resources on an equivalent, nondiscriminatory basis. This requires the consistent implementation of the marginal benefits factor in optimization, pricing and settlement.

**PJM Response** – This issue is currently before the FERC as a result of PJM’s compliance filing.
IMM Recommendation: The MMU recommends that PJM define explicit and transparent rules for calculating available Tier 1 synchronized reserve MW and for its use of biasing during any phase of the market solution. The MMU recommends that PJM publish these rules in Manual 11: Energy and Ancillary Services Market Operations, and associate each instance of biasing with a rule.

PJM Response – PJM agrees with the IMM that this is a very low priority. It would require a significant amount of effort to document a very low dollar impact. PJM does not believe any potential benefit is worth the implementation cost given the very low materiality of the issue.

IMM Recommendation: The MMU recommends that the rules for compliance with calls to respond to actual spinning events be reevaluated.

PJM Response – PJM agrees with this recommendation and is currently evaluating the rules surrounding spinning event compliance. Once the analysis is complete, PJM plans to propose any needed changes to stakeholders. PJM expects to complete this evaluation in 2013.

Operating Reserves Recommendations

IMM Recommendation: The MMU recommends PJM clearly identify and classify all reasons for incurring operating reserves in order to ensure a long term solution of the allocation issue of the costs of operating reserves. The goal should be to have dispatcher decisions reflected in transparent market outcomes to the maximum extent possible and to minimize the level and rate of operating reserve charges.

PJM Response – PJM agrees with this recommendation and had already been working on a problem statement addressing several issues related to operating reserves. PJM plans to present this to the stakeholders in the coming months.

IMM Recommendation: The MMU recommends that the allocation of operating reserve charges to participants be carefully reexamined to ensure that such charges are paid by all whose market actions result in the incurrence of such charges.

PJM Response – PJM agrees with this recommendation, and a discussion of this issue has begun in the stakeholder process. PJM staff is working on a problem statement addressing several issues related to operating reserves and plans to present this to the stakeholders in the coming months.

IMM Recommendation: The MMU recommends, that in the absence of the elimination of the up-to congestion transaction product and the absence of a reexamination of the allocation of all operating reserve charges, PJM should require all up-to congestion transactions to pay day-ahead and balancing operating reserve charges.

PJM Response – PJM does not agree with this recommendation. This issue was discussed by PJM stakeholders, who decided against making any changes at this time. PJM has requested that stakeholders consider a broad discussion of operating reserve costs and allocation methods.

IMM Recommendation: The MMU recommends that the lost opportunity cost in the Energy and Ancillary Services Markets be calculated using the schedule on which the unit was scheduled to run in the Energy Market.
PJM Response – PJM agrees with this recommendation however it was reviewed by stakeholders in late 2012 and PJM stakeholders elected not to make changes at this time. PJM does not believe the issue is material or important enough to take further action at this time.

IMM Recommendation: The MMU recommends including no load and startup costs as part of the total avoided costs in the calculation of lost opportunity cost credits paid to combustion turbines and diesels scheduled in the Day-Ahead Energy Market but not called in real time.

PJM Response – PJM agrees with this recommendation however it was reviewed by stakeholders in late 2012 and PJM stakeholders elected not to make changes at this time. PJM does not believe the issue warrants further action at this time.

IMM Recommendation: The MMU recommends eliminating the use of the day-ahead LMP to calculate lost opportunity cost credits paid to combustion turbines and diesels scheduled in the Day-Ahead Energy Market but not called in real time.

PJM Response – PJM agrees with this recommendation however it was reviewed by stakeholders in late 2012 and PJM stakeholders elected not to make changes at this time. PJM does not believe the issue warrants further action at this time.

IMM Recommendation: The MMU recommends using the entire offer curve and not a single point on the offer curve to calculate energy lost opportunity cost.

PJM Response – PJM believes this issue is very low materiality and is low priority. It is very unlikely stakeholders would support the effort required to implement given the small amount of impact involved.

IMM Recommendation: The MMU recommends PJM initiate an analysis on the reasons why some combustion turbines and diesels scheduled in the Day-Ahead Energy Market are not being called in real time while being economic.

PJM Response – PJM agrees with this recommendation and has been reviewing this issue on an ongoing basis. There have been improvements in this area as documented in market operations reports and PJM is committed to continuing these efforts.

IMM Recommendation: The MMU recommends including the lost opportunity costs paid to combustion turbines and diesels scheduled in the Day-Ahead Energy Market and not called in real time in the calculation of PJM’s Perfect Dispatch metric.

PJM Response – The calculation of the Perfect Dispatch metric was revised in 2012 to reflect these changes.

IMM Recommendation: The MMU recommends modifications to the calculation of lost opportunity costs credits paid to wind units. The lost opportunity costs credits paid to wind units should be based on the lesser of the desired output, the estimated output based on actual wind conditions and the capacity interconnection rights (CIRs). In addition, the MMU recommends PJM allow and wind units submit CIRs that reflect the maximum output wind units want to inject into the transmission system at any time.

PJM Response – PJM does not agree with this recommendation. This recommendation has been examined by both the FERC and PJM stakeholders and been rejected.
Interchange Transactions Recommendations

The IMM has made numerous recommendations which PJM has combined below:

**IMM Recommendation:** PJM and MISO have agreed to allow for unlimited spot market ATC on the NYISO Interface. These modifications are currently being evaluated by PJM. The MMU continues to recommend that PJM permit unlimited spot market imports and exports at all PJM Interfaces.

**PJM Response** – PJM does not believe these changes are necessary. Since PJM has instituted market participant notification when reserved transmission service goes unutilized and prevents acquisition of such service by other market participants, PJM’s transmission service utilization now exceeds 80 percent. Given the resulting low materiality of this recommendation PJM does not believe it would be cost-effective to pursue the tool and system changes required to implement a single-path, unlimited product.

**IMM Recommendation:** The MMU recommends that PJM continue to work with both MISO and NYISO to improve the ways in which interface flows and prices are established in order to help ensure that interface prices are closer to the efficient levels that would result if the interface between balancing authorities were entirely internal to an LMP market.

**PJM Response** – PJM agrees with this recommendation and continues to actively work with all surrounding balancing authorities on market-to-market issues.

**IMM Recommendation:** The MMU recommends that PJM implement a validation method for submitted transactions that would require market participants to submit transactions on market paths that reflect the expected actual flow. This validation method would prohibit market participants from breaking transactions into smaller segments to defeat the interface pricing rule and receive higher prices.

**PJM Response** – PJM staff does not believe there is a problem with PJM’s interface pricing nor does staff see a need to implement a path restriction similar to what NYISO has done. However this issue is currently in discussions in the PJM stakeholder process.

**IMM Recommendation:** The MMU recommends the termination of the existing PJM/PEC JOA, as some of the assumptions used in the development of the JOA were based on explicit assumptions about the Progress generation fleet and the dispatch of that generation.

**PJM Response** – PJM does not agree with the proposal to terminate the PJM/PEC JOA. PJM is involved in ongoing discussions with PEC/Duke to explore whether any adjustments to the current PJM/PEC and PJM/Duke JOA’s are necessary or desirable.

**IMM Recommendation:** MMU recommends that PJM implement rules to prevent sham scheduling. The MMU also recommends that PJM, NYISO, MISO and Ontario work together to create business rules that prevent sham scheduling among and between the RTO/ISO markets.

**PJM Response** – PJM believes the issues identified by the IMM are isolated to behaviors of a few market participants and the matter should be referred to the FERC Office of Enforcement if it persists. PJM staff does not believe a broad market rule change is warranted given substantial risk of unintended harm to legitimate transactions. The IMM has not produced analysis to indicate there is a problem with PJM’s interface pricing approach nor does PJM see a need to implement a path restriction similar to what NYISO has done. However this issue is currently under discussion in the PJM stakeholder process.
**FTR and ARR Recommendations**

**IMM Recommendation:** The MMU recommends that the calculation of the reported payout ratio appropriately include negative target allocations as a source of revenue to fund FTRs, consistent with actual settlement payout.

**PJM Response** – PJM believes the IMM has misunderstood the FTR reporting calculation and the recommendation does not account for the end of year adjustment to the allocation. The final year end reporting of FTR payout performance is the virtually identical under the current PJM reporting method and the method proposed by the IMM, therefore there is little value to changing the calculations. When viewing only the interim monthly reporting, the IMMs method yields a different result but the IMMs method does not appear to be a more accurate estimator than the current estimation method. Given this is simply a reporting issue, PJM and PJM stakeholders view this very low materiality and low priority.

**IMM Recommendation:** The MMU recommends that netting of positive and negative target allocations within portfolios be eliminated.

**PJM Response** – PJM agrees with this recommendation but PJM stakeholders recently discussed this issue in detail and elected not to pursue the IMM recommended change.

**IMM Recommendation:** The MMU recommends that counter flow and prevailing flow FTRs should be treated symmetrically with respect to the application of a payout ratio.

**PJM Response** – PJM does not agree with this recommendation. PJM stakeholders recently discussed this issue in detail and elected not to pursue the IMM recommended change.

**IMM Recommendation:** The MMU recommends that the difference between day ahead and balancing congestion be reviewed and modifications implemented where possible. Funding issues that persist as a result of modeling differences should be borne by FTR holders operating in the voluntary FTR market.

**PJM Response** – PJM has analyzed and reviewed this issue exhaustively. PJM has issued a comprehensive report on the subject and this issue is currently before the FERC in a recent complaint by FirstEnergy.
PJM Response to the Conclusion Regarding the Regulation Market

Similar to previous years, in the 2012 report the IMM concluded the Regulation Market performance is not competitive in spite of the IMM’s finding that the offer behavior of market participants is competitive. The IMM bases its determination upon its objection to a few market design elements which were implemented as part of a PJM stakeholder compromise to implement the Three Pivotal Supplier (TPS) Test into the Regulation Market. These market design elements were also approved by the FERC. The design elements to which the IMM objects are: the calculation method for lost opportunity costs (LOC), the elimination of the offset of Regulation Market revenues against operating reserve credits and the increase in the regulation offer adder to $12/MWh.

PJM disagrees with the IMM’s assertion that the Regulation Market results are not competitive because the actual market results demonstrate competitive behavior as acknowledged by the IMM in the 2012 State of the Market Report. The Regulation Market continues to operate in a competitive manner consistent with PJM’s FERC-approved tariff with the changes the FERC has already deemed to be just and reasonable. While PJM respects the IMM opinion related to these design elements, consideration should be given to the fact that stakeholders have thoroughly discussed this recommendation in the past and have concluded no changes are warranted. Given the overwhelming stakeholder support and FERC approval of the design PJM believes the market is operating as intended and the issues raised by the IMM are not material enough to recommend market rule changes.

Additionally, since the implementation of the changes in the Regulation Market at the end of 2008, the available supply, hourly eligible supply, daily supply offered, and the ratio of supply offered to the requirement have all increased substantially as shown in Table 1. Moreover, Table 1 also shows in spite of the allowed $12/MWh adder, the weighted average marginal offer for regulation has been lower every year than it was prior to the change and generally below $12/MWh.

Table 1: Regulation Market Statistics: Calendar years 2007 through 2012

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation capability (MW)</td>
<td>7,609</td>
<td>7,326</td>
<td>7,805</td>
<td>8,053</td>
<td>8,871</td>
<td>9,413</td>
</tr>
<tr>
<td>Average Daily Offer (MW)</td>
<td>3,911</td>
<td>4,983</td>
<td>6,343</td>
<td>5,645</td>
<td>6,083</td>
<td>6,551</td>
</tr>
<tr>
<td>Percent of capability offered</td>
<td>51%</td>
<td>68%</td>
<td>81%</td>
<td>70%</td>
<td>69%</td>
<td>70%</td>
</tr>
<tr>
<td>Avg. Hourly Eligible (MW)</td>
<td>1,835</td>
<td>2,183</td>
<td>2,537</td>
<td>2,591</td>
<td>2,723</td>
<td>3,253</td>
</tr>
<tr>
<td>Percent of Capability Eligible</td>
<td>24%</td>
<td>30%</td>
<td>33%</td>
<td>32%</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>Ratio Supply to requirement</td>
<td>1.9</td>
<td>2.39</td>
<td>2.98</td>
<td>2.95</td>
<td>3.00</td>
<td>3.20 (^5)</td>
</tr>
<tr>
<td>Percent of hours failing TPS Test</td>
<td>80%</td>
<td>83%</td>
<td>52%</td>
<td>73%</td>
<td>82%</td>
<td>43%</td>
</tr>
<tr>
<td>LW Avg. Marginal offer ($/MWh)</td>
<td>$12.06</td>
<td>$11.94</td>
<td>$8.79</td>
<td>$9.28</td>
<td>$10.57</td>
<td>$14.92</td>
</tr>
</tbody>
</table>


\(^5\) Represents an average of the first nine months of 2012 as indicated in the 2012 State of the Market Report, Table 9-7 page 275.
The IMM filed its initial assessment of the changes with the FERC at the end of 2009 and petitioned the FERC to alter the design. The FERC has declined to act upon the IMM’s petition to change the regulation market design. Furthermore, as acknowledged by the IMM, the Regulation Market design has substantially changed with the implementation of performance-based regulation compensation to comply with FERC Order 755. Since the implementation was completed on October 1, 2012 the IMM indicated it had reached no conclusions related to competitiveness of market results due to the relatively short period it has been in operation.