UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

FirstEnergy Service Company	)	
v.	)	Docket No. EL14-55-000
PJM Interconnection, L.L.C.	)	

COMMENTS OF THE INDEPENDENT MARKET MONITOR FOR PJM

Pursuant to Rule 211 of the Commission's Rules and Regulations,[1] Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM[2] ("Market Monitor"), submits these comments responding to the complaint filed by First Energy Service Company ("FirstEnergy") on May 2, 2014, as amended on September 22, 2014 ("FE Complaint"). The Market Monitor generally supports the objective of the complaint, which is to extend the holding in the recent *EPSA v. FERC* decision to the PJM capacity markets.[3] Granting this objective as it pertains to future RPM auctions would permit the correction of faulty rules that have interfered with the efficient performance of the PJM capacity market design, known as the Reliability Pricing Market ("RPM"). Granting this objective would facilitate PJM's current plan to significantly redesign RPM and the role of demand resources in RPM.

---

1 18 CFR § 385.211 (2011).

2 Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff ("OATT").

3 Electric Power Supply Association v. FERC, 753 F.3d 216 (D.C. Cir. 2014).

FirstEnergy requests that FERC direct PJM to recalculate the results of PJM's May 23, 2014, Base Residual Auction for the 2017/2018 Delivery Year. The Market Monitor takes no position at this time on whether such relief is required as a matter of law. If the Commission should decide to grant such relief, the Market Monitor's analysis shows that prices would be higher but that PJM could procure the required level of capacity. The Market Monitor does not support, under the current circumstances, recalculating the BRA for the 2017/2018 Delivery Year or abrogating payments to Demand Resources cleared in RPM auctions since May 23, 2014. As a policy matter, the Market Monitor supports the treatment of demand-side resources as on the demand side of the market rather than on the supply side in future RPM auctions, including reliance on actual metered LSE demand rather than inherently flawed measurement and verification methods.

I. COMMENTS

A. The *EPSA v. FERC* Decision in Combination with the FE Complaint Provides a Valuable Opportunity to Make Timely and Needed Reforms to RPM.

The Market Monitor does not at this time take a position on the precise scope of the Commission's jurisdiction over demand response in the capacity markets.

The Market Monitor generally supports the objective of the complaint, which is to extend the holding in the recent *EPSA v. FERC* decision to the PJM capacity markets.[4] Granting this objective as it pertains to future RPM auctions would permit the correction of faulty rules that have interfered with the efficient performance of the PJM capacity market design, known as the Reliability Pricing Market ("RPM"). Granting this objective would facilitate PJM's current plan to significantly redesign RPM and the role of demand resources in RPM.

---

[4] Electric Power Supply Association v. FERC, 753 F.3d 216 (D.C. Cir. 2014).

The Market Monitor has documented in numerous reports the price suppressing effects and market design flaws attributable to the current treatment of Demand Resources in the PJM Capacity Market, including:

- the failure to require performance from Demand Resources that is comparable to the performance provided by Generation Capacity Resources and that would therefore make Demand Resources substitutes for Generation Resources while providing substantially the same compensation to both;[5]

- the failure to remove inferior Demand Resource products from the capacity markets which cannot, by definition of the products, be substitutes for Generation Resources and the failure to require demand resource products to respond year round during any hour;

- the failure to eliminate the 2.5 shift in the demand curve used in RPM Base Residual Actions;[6]

- the failure to require Demand Resources to make physical offers;[7]

- the failure to require Demand Resources to make daily offers into the Day-Ahead Energy Market as required of Generation Capacity Resources;[8]

- the failure to apply a uniform system offer cap to Demand Resources and Generation Capacity Resources;[9] and

---

5 *See, e.g.*, Monitoring Analytics, LLC, 2013 State of the Market Report for PJM (March 13, 2013) ("2013 SOM") at 197, 203; *see also*, Monitoring Analytics, LLC, Analysis of the 2016/2017 RPM Base Residual Auction (April 18, 2014) at 3, 35–27 ("2016/2017 BRA Report"), which can be accessed at: <*http://www.monitoringanalytics.com/reports/Reports/2014/IMM_Analysis_of_the_20162017_RPM_Base_Residual_Auction_20140418.pdf*>.

6 *See, e.g.*, 2013 SOM at 157, 160; 2016/2017 BRA Report at 4–5.

7 *See, e.g.*, 2013 SOM at 160, 171–172; Monitoring Analytics, LLC, Analysis of Replacement Capacity for RPM Commitments: June 1, 2007 to June 1, 2013 (September 13, 2013), which can be accessed at: <*http://www.monitoringanalytics.com/reports/Reports/2013/IMM_Report_on_Capacity_Replacement_Activity_2_20130913.pdf*>; Comments of the Independent Market Monitor for PJM, Docket No. ER14-1461 (April 1, 2014).

8 *See, e.g.*, 2013 SOM at 197, 203; Complaint and Motion to Consolidate of the Independent Market Monitor for PJM, Docket No. EL14-20 (January 27, 2014).

- the failure to develop measurement and verification rules sufficient to ensure that Demand Resources do not consume capacity when it is needed by those who pay for it.[10]

Many of these issues derive from the faulty attempt to treat Demand Resources as a form of supply. Others derive from faulty product definitions and reliance on measurement and verification methods that cannot correctly calculate the MW of Demand Resources that actually respond to a call to interrupt. Meanwhile, rules for demand-side resources to participate in the markets as demand, known as "Price Responsive Demand" or "PRD," fail to attract participation.[11] The Market Monitor recently filed a report in Docket No. ER11-4628 analyzing PRD and recommending ways to improve it. The report is included as an Attachment.

Removal of Demand Resources as a form of supply would open the way to the development of better rules that treat demand as demand and that focus solely on the actual metered loads on the PJM system during critical hours rather than inaccurate estimates based on inherently flawed measurement and verification methods. PJM already has indicated in its advance comments an intent to move at least part way in this direction.[12] The rules that govern the treatment of Demand Resources in the capacity market have outlived their usefulness and it is time to refocus on developing the demand side of the market directly. *EPSA v. FERC* creates an opportunity to move in that direction that should not be missed.

---

9 *Id*.

10 *See, e.g.*, 2013 SOM at 197–198, 210; Comments of the Independent Market Monitor for PJM, Docket No. ER14-822 (January 1, 2014).

11 *See* The PJM Reliability Assurance Agreement Schedule 6.1 (Price Responsive Demand).

12 *See* PJM informational filing, Docket No. EL14-55 (October 17, 2014), including attached paper: PJM, "The Evolution of Demand Response in the PJM Wholesale Market" (October 6, 2014).

B. If the 2017/2018 BRA Were Rerun, the Market Monitor's Analysis Shows That Prices Would Be Higher But That PJM Could Procure the Required Level of Capacity.

The FE Complaint (at 4) (i) "seeks removal of all provisions in PJM's tariff, agreements, and business manuals that authorize or require PJM to compensate demand resources as capacity suppliers" effective as of May 23, 2014, and (ii) "seeks to recalculate the results of PJM's May 2014 Base Residual Auction ("BRA") for the 2017/2018 Delivery Year." The scope of the relief requested under prong (i) is not entirely clear. If the request is to remove all such provisions in PJM's tariffs as they relate to future RPM auctions, the Market Monitor supports that request. However, if the request means that demand resources procured in RPM auctions for the 2013/2014, 2014/2015, 2015/2016, 2016/2017 Delivery Years should be released, receiving no compensation from PJM and unavailable for call by PJM during those Delivery Years, then this request goes beyond the scope of relief regarding the 2017/2018 Delivery Year under prong (ii).

If the RPM BRA for the 2017/2018 Delivery Year were rerun to Remove Demand Resources ("DR"), the Market Monitor's analysis shows that prices would be higher but that PJM could procure the required level of capacity.. The Market Monitor has released reports that FirstEnergy includes as Exhibit 5 and Exhibit 6 to the FE Complaint. The Market Monitor does not take issue with FirstEnergy's characterization of and reliance on those reports.

The Market Monitor does not support, under the current circumstances, recalculating the BRA for the 2017/2018 Delivery Year or abrogating payments to Demand Resources cleared in RPM auctions since May 23, 2014. As a policy matter, the Market Monitor supports the treatment of demand-side resources as on the demand side of the market rather than on the supply side in future RPM auctions, including reliance on actual metered LSE demand rather than inherently flawed measurement and verification methods.

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,

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

Jeffrey W. Mayes

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

Dated: October 22, 2014

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 22nd day of October, 2014.

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

Attachment

Monitoring Analytics, LLC
2621 Van Buren Avenue, Suite 160
Valley Forge Corporate Center
Eagleville, PA 19403
Phone: 610-271-8050
Fax: 610-271-8057

Monitoring Analytics

VIA ELECTRONIC FILING

July 22, 2014

Kimberly D. Bose, Secretary
Nathaniel J. Davis, Sr., Deputy Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: *PJM Interconnection, L.L.C.*, Docket No. ER11-4628-000

Dear Secretary Bose:

Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM, submits the attached report assessing the performance and effects of Price Responsive Demand (PRD) in PJM's markets as directed by the order issued in the above referenced proceeding on May 14, 2012.[1]

If you have any questions or concerns about this filing, please call the undersigned at (610) 271-8053.

Sincerely,

Jeffrey W. Mayes, General Counsel

[1] 139 FERC ¶ 61,115 at P 33.

Monitoring Analytics

Price Responsive Demand

The Independent Market Monitor for PJM

July 22, 2014

This page intentionally left blank.

Introduction

The Independent Market Monitor for PJM (MMU) submits this report in compliance with requirements set forth in the Commission's PRD Order (ER11-4628-000).[1] The Commission required that the MMU report on the performance of PJM's price responsive demand (PRD) program 60 days after PJM's release of the results of its May 2014 base residual auction. This report, prepared by the MMU, reviews the market penetration and functionality of Price Responsive Demand (PRD) (for the 2016/2017 and 2017/2018 Delivery Years) and provides recommendations for improvements. To date there has been no participation by any PRD Resources in any RPM auction for the transition period of the 2016/2017 Delivery Year through the 2018/2019 Delivery Year.

Overview

A fully functional demand side of the electricity market means that end use customers or their designated intermediaries will have the ability to see real time energy price signals, will have the ability to react to real time prices and will have the ability to receive the direct benefits or costs of the resultant changes in real time energy use. In addition, customers or their designated intermediaries will have the ability to see current capacity prices, will have the ability to react to capacity prices and will have the ability to receive the direct benefits or costs of the corresponding changes in the demand for capacity. A functional demand side of these markets means that customers will have the ability to make decisions about levels of power consumption based both on the value of the uses of the power and on the actual cost of that power.

With exception of large wholesale customers in some areas, most customers in PJM are not on retail rates that directly expose them to the wholesale price of energy or capacity. As a result, most customers in PJM do not have the direct ability to see, respond to or benefit from a response to price signals in PJM's markets. PJM's demand side programs are generally designed to allow customers (or their intermediaries in the form of load serving entities (LSEs) or curtailment service providers (CSPs)) to either directly, or through intermediaries, be paid as if they were directly paying the wholesale price of energy and capacity and avoiding those prices when reducing load. PJM's demand side programs are designed to provide direct incentives for load resources to respond, via load reductions, to wholesale market price signals and/or system emergency events.

PRD resources are included in both the capacity market and the energy market as reductions to demand. This is a critical improvement on the existing DR construct which includes demand response resources as supply in the capacity market. PRD resources

---

[1] PJM Interconnection, L.L.C., 139 FERC ¶ 61,115 (2012).

are represented in PJM's capacity market as reductions to an LSE's capacity obligations at PRD Provider specified capacity prices in the Base Residual Auction (BRA) or the Third Incremental Auction (IA).[2] PRD resources are represented in PJM's energy market as node specific demand schedules.[3] PRD providers are required to submit real time energy market demand curves (made up of price and MW pairs), on a node specific basis, for its capacity market cleared or FRR committed PRD Resources.[4] Through automated price responsive systems or centralized control, a PRD Provider causes load resources, on a node specific basis, to respond to the real-time LMP, although responses to LMP are not mandatory under PRD. The PRD resource, or its LSE, benefits from the resulting load reductions as a reduction in its energy bill.

Outside of Maximum Emergency Generation events, PRD resources are not obligated to reduce demand according to their submitted demand schedules. During a Maximum Emergency Generation event, PRD resources must reduce their demand to match their submitted demand schedules, if LMP is at or above a customer's price threshold, or face penalties.[5] For a PRD provider with PRD resources at more than one bus in a zone, the PRD provider's compliance during performance events is measured by the aggregate load target of all of the PRD provider's affected nodes in the zone, rather than on an individual node specific basis.[6] A PRD provider with a portfolio of resources at multiple affected nodes can use its PRD resources that reduce more than their demand curve requirement at their respective nodes to offset its PRD resources that reduce less than

---

2 See LSE PRD Credit, RAA Schedule 6.1 (Price Responsive Demand) § G.

3 Throughout this report, node will represent a specific price node.

4 RAA Schedule 6.1 (Price Responsive Demand) § F.

5 The PRD resource submitted demand level target, termed the Maximum Emergency Service Level (MESL), is subject to a PRD load ratio adjustment factor. The MESL Adjustment Factor equals the greater of [1.0] or [(actual Zonal load– actual total PRD load in Zone) / (Final Zonal Peak Load Forecast – final Zonal Expected Peak Load Value of responding PRD in Zone). This adjustment factor increases the MESL target (increases the allowed load MW at each defined PRD price point) when the actual zonal load for the day is higher than the zonal peak forecast for the day.

6 RAA Schedule 6.1 (Price Responsive Demand) § K. Note, there is a contradiction between RAA and Manual 18 on the measurement methodology. Manual 18 indicates that in the case of a PRD provider with PRD resources at more than one bus in a zone, the PRD provider's compliance during performance events is measured in terms of the aggregate MW shortfalls of all of the PRD provider's affected registrations in the zone, rather than on an individual node specific basis.

their demand curve requirement at their respective nodes in a given measurement period.

PRD demand curves, when submitted, are assumed to be responsive at the specified prices in PJM's solution software, regardless of whether the PRD has an obligation (based on declared Maximum Emergency Generation events) to perform. This means that a PRD resource demand curve may set LMP if the demand curve becomes the marginal resource in the solution software. A PRD resource bid price is currently limited to the $1,000 offer cap applied to generation resources.[7]

PRD resources are not required to have telemetry to PJM operations. Absent system telemetry and direct dispatch capability by PJM consistent with that used for generation resources, PRD should not be eligible to set price in PJM's Rea-Time Electricity Market. PJM's system does not assume responses, nor allow price setting, by generation resources unless the generation is actively following PJM's dispatch instructions and there is supporting telemetry.

To qualify as a PRD resource, customers are required to have dynamic retail rates,[8] meters that can record usage in an hourly interval or less, automated systems and centralized control by the PRD provider that can guarantee customer specific load response.[9] To participate in the PJM Capacity Market, a PRD provider must submit a PRD Plan by January 15, before the BRA or third IA of that year.[10] The PRD plan consists of different energy price thresholds at which a PRD provider guarantees, during maximum emergency generation events, to immediately reduce node specific consumption to a specified MW level. PRD bid in the capacity market appears as shifts in the auction's demand curve based on the PRD provider's specified capacity prices for a specific reduction in the LSE's capacity obligation. A PRD provider that clears in the capacity market must reduce its load to its Maximum Emergency Service Level (MESL) when PJM initiates a Maximum Emergency event and when LMP is at or higher than its

---

7 RAA Schedule 6.1 (Price Responsive Demand) § D.4.

8 Examples of qualifying dynamic retail rates are 1) LMP, 2) time of use electricity rates (with at least a peak and off peak price component) or 3) rates with peak time rebates. PJM "Manual 18: Capacity Market," Revision 22 (April 24, 2014), p. 30-31

9 PJM "Manual 18: Capacity Market," Revision 22 (April 24, 2014), p 30.

10 PJM "Manual 18: Capacity Market," Revision 22 (April 24, 2014), p 31.

specified price threshold. A PRD provider that is unable to reduce, on an affected node (aggregate or individual) basis, to their MESL level will pay penalties.[11]

PRD is a better approach than PJM's other demand response programs. In PRD, load resources see, respond to and benefit at the nodal level from a response to wholesale market price signals rather than receiving side payments. PJM's Economic Load Response program, for example, provides payment for energy reductions based on the zonal, rather than nodal, wholesale energy prices at the time of declared reductions in load, where declared reductions are measured against customer base line consumption levels that have significant measurement issues. PJM's Emergency Demand Response program allows participating load resources to sell in the ability to reduce load by specified MW amounts in times of declared emergencies as capacity supply MW in PJM's capacity market.[12] These MW are treated as supply although they are reductions in demand. Under the PRD program, MW of demand reduction are appropriately treated as demand.

The nodal nature of the PRD response also means that PRD resources have system operation and reliability advantages over demand side resources participating in PJM's other demand response program. Unlike PRD, the location of demand response is not known by PJM in the operational day.[13] While Emergency Demand Response resources are dispatchable, they respond on a zonal (or super zonal) basis, not on a nodal basis, and require at least a thirty minute notice under recent changes, rather than the near instant response required of PRD.[14] [15] [16]

While PRD is better than PJM's other demand side programs, the current implementation of the PRD program is not an attractive option for load resources relative to PJM's other demand side programs. This is reflected in the absence of PRD participation in any RPM auction for the transition period of the 2016/2017 Delivery Year

---

11 PJM "Manual 18: Capacity Market," Revision 22 (April 24, 2014), p 38.

12 PJM "Manual 18: Capacity Market," Revision 22 (April 24, 2014), p 132-135.

13 PJM "Manual 11: Energy & Ancillary Services Market Operations," Revision 67 (June 1, 2014), p 108-109.

14 PJM OATT. Attachment DD (Reliability Pricing Model) § 11 p. 2641.

15 PJM OATT. Attachment DD-1(Procedures for Demand Resources and Energy Efficiency) p. 2655

16 PJM "Manual 18: Capacity Market," Revision 22 (April 24, 2014), p 132-134.

and the 2017/2018 Delivery Year. This lack of participation is due primarily to the fact that the design of PRD is better than the design of existing demand side programs. The design of the other demand side programs makes them artificially attractive. PRD, by design, includes stronger compliance requirements and more limited aggregation opportunities across nodes. These requirements are necessary for PRD to act as effective, node specific price responsive demand in PJM's capacity and energy markets. However, the PRD program suffers from internally inconsistent rules regarding measurement of performance and inconsistent allocations of realized cost savings and penalties that disrupt the price signal, and therefore its value, to potential customers and providers. The rules favor participation by LSEs, not customers.

Properly revised, PJM's PRD program would allow end use customers, without intermediaries, to see, react to and receive the direct benefits or costs of changes in real-time energy use and capacity requirements, thereby providing a vehicle for effective demand side participation by customers in PJM's markets. The PRD program would provide an effective replacement for PJM's current DR programs with their critical design weaknesses. In the PRD program, participating LSEs should be required to pass on all the energy and capacity market savings, costs and penalties associated with PRD resources directly to the end use customer that is providing the PRD resource. The absence of a full pass through distorts, and in some cases eliminates, the incentives to participate in the PRD program.

The PRD program should be modified to require a stronger connection between LMP and the retail rates of customers that qualify to participate in the program. Customers should face real time LMP as a default at their price nodes, rather than just time of use rates in order to participate in the PRD program. Such exposure would allow end use customers, without intermediaries, to see, react to and receive the direct benefits or costs of changes in real-time energy use.

Recommendations

- The MMU recommends that the PRD program be reevaluated. The PRD program should be revised to allow end use customers, without intermediaries, to see, react to and receive the direct benefits or costs of changes in real-time energy use and in capacity requirements, thereby providing a vehicle for effective participation by customers in PJM's markets.
- The MMU recommends that participating LSEs be required to pass all the energy and capacity market savings, costs and penalties associated with PRD resources directly to the end use customer that is providing the PRD resource. The absence of a full pass through distorts, and in some cases eliminates, the incentives to participate in the PRD program.
- The MMU recommends that PJM limit eligible dynamic retail rate structures to retail rates that directly reflect LMP in order to provide end-use customers with an accurate price signal for electricity. Absent a direct link between the customer's time

of use rates and the customer's nodal LMP, retail rates distort the marginal incentives for customer power consumption.

- The MMU recommends that PJM require five minute interval meters for all PRD eligible end-use customers, rather than hourly interval meters, to provide more accurate measurement of partial hour compliance.
- The MMU recommends that PJM revise the penalty rules to make the PRD incentives consistent with the incentives in an all energy market. .
- The MMU recommends that PJM eliminate the MESL adjustment factor and measure compliance via a PRD resource's unadjusted MESL. Using the adjusted MESL will tend to undermine PRD reduction requirements during periods of greatest system stress, when the unadjusted MESL requirement would be most valuable to the system.
- The MMU recommends that PRD resource performance be measured at each specific node, rather than on the basis of a PRD provider's PRD portfolio within the zone.
- The MMU recommends that PJM eliminate discrepancies between the RAA and PJM's Manual 18.