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VIA ELECTRONIC FILING

September 20, 2010

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426-0001

Re: *PJM Interconnection, L.L.C.*, Docket No. ER09-1063 (Compliance Filing)

Dear Secretary Bose:

In compliance with the Federal Energy Regulatory Commission's ("Commission") Order on Compliance Filing issued on December 18, 2009 in Docket Nos. ER09-1063-000 and ER09-1063-001 ("December Order"), PJM Interconnection, L.L.C. ("PJM") hereby submits its second informational filing concerning the status of PJM's efforts to work with state regulators to better integrate the impact of price responsive demand ("PRD") in wholesale market operations.[1] Much has changed since PJM filed its first informational filing within the context of its March 18, 2010 Compliance Filing ("March 18 Filing").[2] As discussed in more detail below, PJM and its stakeholders, including state regulatory representatives, have been trying since June 2009 to work through the PJM Stakeholder process to develop wholesale market PRD rules clarifying how PRD would function, particularly as it is integrated with evolving retail market rules. On August 18, 2010, the rules to integrate PRD into PJM's capacity and energy markets were presented for a vote at the PJM Market Implementation Committee ("MIC") meeting. Given the various competing interests, the PJM stakeholders were unable to reach the required simple majority to enable the PRD rules to move forward for consideration at the PJM Markets and Reliability Committee ("MRC"), electing instead to initiate a Task Force to further develop details around the proposal. Subsequently, at the request of PJM Members, PRD was placed on the September 15, 2010 MRC agenda for a vote.[3] However, at its September 14, 2010 meeting, the MIC committed to holding up to four (4) stakeholder meetings between September and November 2010 with the goal of completing a PRD proposal that could be considered for a vote at the November 2010 MRC and Member Committee ("MC") meetings. Given the developments at the September 14, 2010 MIC meeting, PJM Members requested that PRD be withdrawn from the agenda at the September 15, 2010 MRC meeting. While the PJM stakeholders are currently acting on a timeline that would enable

[1] *See* December Order at P 93.
[2] See PJM Interconnection, L.LC., Docket No. ER09-1063 (March 18, 2010).
[3] The PJM Members that requested that PRD be placed on the September 15, 2010 MRC agenda were: Paul Williams on behalf of Lehigh Cement, seconded by David Scarpignato of Old Dominion Electric Cooperative.

implementation of PRD in the May 2011 RPM auction for the 2014/2015 Delivery Year, given the result of the August 18th MIC vote, PJM remains uncertain whether its Stakeholders will be able to reach the 2/3 stakeholder approval required for filing the changes currently in front of them or reach consensus on any particular alternative. Accordingly, depending upon the outcome of the future MIC meetings addressing PRD, PJM may return to the Commission to provide further details on the status and to seek further guidance from the Commission in order to pursue timely development and implementation of PRD.

I. Background

On October 17, 2008, the Commission issued its Final Rule in Docket Nos. RM07-17-000 and AD-07-7-000 ("Order 719"),[4] requiring among other things, that independent system operators and regional transmission organizations (collectively, "RTOs") submit a compliance filing that modifies and improves the operation of wholesale electric markets specifically in the substantive areas of demand response, RTO responsiveness, long term power contracting and market monitoring policies to the extent necessary to comply with the mandates and recommendations of the order. To comply with Order 719, PJM proposed modifications to its Tariff and Operating Agreement to be consistent with the mandates of Order 719 in its compliance filing submitted on April 29, 2009, and amended on May 1, 2009 ("Initial Compliance Filing"). In its December Order, the Commission accepted PJM's Initial Compliance Filing, subject to conditions, effective as of June 29, 2009.

Specifically, the December Order required that PJM submit various informational filings, compliance filings and status reports. On March 18, 2010, in compliance with the December Order, PJM submitted revisions to its Open Access Transmission Tariff ("Tariff") and Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement") incorporating revisions mandated by the December Order. Additionally, the March 18 Filing contained the first informational filing required in accordance with paragraph 93 of the December Order, addressing PJM's efforts to work with state regulators to better integrate PRD within wholesale market operations.[5] The present filing is the second of three filings due to be submitted by PJM in accordance with paragraph 93 of the December Order.[6]

PJM's March 18 Filing in this docket addressed PJM's effort to develop a PRD option for load reduction capability beginning in mid-2009 through March 18, 2010.[7]

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[4] *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, 73 Fed. Reg. 64,100 (Oct. 28, 2008), FERC Stats. & Regs. ¶ 31,281 (2008).
[5] March 18 Filing at 9 – 10.
[6] PJM's third information filing on this matter is due on February 14, 2011.
[7] *See* March 18 Filing at 8-10. *See also Demand Response in the PJM Markets* (Statement of Terry Boston, President and CEO, on behalf of the PJM Board of Managers) (June 26, 2009), *available at*: http://www.pjm.com/~/media/committeesgroups/committees/mic/20100722/20100722-item-02b-statement-on-demand-response-in-the-pjmmarkets.ashx; *and Supplemental Report and Submittal of PJM Interconnection, L.L.C. in Support of Further Commissions Action on Rehearing*, Docket No. EL09-68-000, (August 26, 2009) (The August 26 Supplemental Report was originally filed in the proceeding, PJM

Specifically, with respect to PJM's work with state regulators, in August of 2009, PJM added a PRD option to the Demand Response Roadmap for the PJM Region ("Roadmap")[8] based on the March 9, 2009 whitepaper entitled "The Integration of Price Responsive Demand into PJM Wholesale Power Markets and System Operations," co-authored by Commissioner Paul Centolella of the Public Utilities Commission of Ohio and Andrew L. Ott, Senior Vice President, Markets at PJM.[9] Thereafter PJM reviewed the Roadmap with interested state commissions and consumer advocates, and incorporated the feedback received into the version of the Roadmap used for the PJM Symposium on Demand Response III ("Symposium") held in November of 2009. The purpose of the Symposium was to learn about wholesale and retail market plans, timelines for integrating PRD and to consider the related challenges. The Roadmap is a guideline that identifies wholesale and retail requirements for developing demand response and provides options to account for load reduction capability as a supply resource or as a reduction in usage.

PJM staff introduced a proposed plan and PJM Manual 18 revisions for implementing PRD in the capacity market at the September 29, 2009 Capacity Market Evolution Committee ("CMEC") meeting. The proposal laid out the role of PRD in reducing the future reliability requirement of a Load Serving Entity ("LSE"), targeted implementation for the May 2010 Base Residual Auction (for the 2013/2014 planning year) and referenced the September 16, 2009 adoption by the PJM Planning Committee ("PC") of PJM Manual 19 revisions required to implement PRD. When the CMEC became inactive, PJM moved this work to the MIC. In late 2009, PJM stakeholders elected to defer a vote on the PJM PRD proposal, and PJM therefore delayed the timeline for PRD implementation by one year.

PRD provides the marketplace with a new option for accounting for load reduction capability, and together with the shortage pricing proposal filed by PJM in June, removes significant barriers to optimal demand response participation.[10] While PRD is not a prerequisite to implement the shortage pricing proposal into the PJM market design, the timing of the PRD and implementation of the shortage pricing proposal currently before the Commission is important because of the confluence of Order 719 with retail policy initiatives involving advanced metering infrastructure ("AMI"),

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Industrial Customer Coalition v. PJM Interconnection L.L.C., Docket No. EL08-12-000, however the Commission instituted a docket change, assigning new Docket No. EL09-68-000).

[8] *See* "*The Demand Response Roadmap for the PJM Region*", PJM Demand Response Symposium III, *available at*:http://www.pjm.com/~/media/committees-groups/stakeholder-meetings/dr/drs-III/20091109-dr-road-map-convino.ashx. *See also* the statement of support in the Roadmap by state commission members of the Mid-Atlantic Distributed Resources Initiative, *available at*: http://www.pjm.com/~/media/committees-groups/stakeholder-meetings/dr/drs-III/20091109-demand-response-roadmap.ashx

[9] See Paul Centolella and Andrew Ott whitepaper entitled "*The Integration of Price Responsive Demand into PJM Wholesale Power Markets and Systems Operations*," *available at*: http://www.hks.harvard.edu/hepg/Papers/2009/Centolella%20%20Ott%20PJM%20PRD%2003092009.pdf ("Centolella/Ott Whitepaper").

[10] *See PJM Interconnection, L.L.C., Answer to Comments and Motion for Leave to Answer and Answer to Protests* at 32-34, Docket No. ER09-1063-004 (August 20, 2010) (PRD and PJM's shortage pricing proposal are market design elements that complement each other).

renewable portfolio standards, targets for reducing annual energy usage through energy efficiency, and targets for reducing annual peaks through demand response. Additional considerations impacted by the timing of PRD and shortage pricing implementation are game changing investments in AMI deployment, energy efficiency, smart grid technology and standards, alternative energy technologies, and electric vehicles funded through the American Recovery and Reinvestment Act of 2009 ("ARRA").

It is important to note that PRD is intended to **add** an option to provide load reduction capability in the wholesale market. Indeed the Demand Response Potential Report prepared by the Commission for the Congress included the impact of PRD on maximizing demand response participation.[11] PRD is separate from, and has not diminished on-going efforts to enable, demand response participation in the wholesale market as a supply resource that competes with generation.

Accordingly, as both of these efforts move forward, it will be critically important to avoid creating incentives for demand side response to participate through one option over the other simply because, for example, the supply side option offers a more favorable revenue stream than the savings stream offered by the PRD option. Avoiding this problem will require well coordinated cooperation between wholesale and retail regulatory authorities as PJM pointed out in its Demand Response Compensation NOPR comments.[12]

II. PRD Developments from March 19 through September 18, 2010

Stakeholders have continued to be engaged in an intense effort to complete and endorse manual, Reliability Assurance Agreement ("RAA") and Tariff revisions needed to implement PRD. The MIC, the PC, the PJM Credit Subcommittee and the PJM Market Settlements Working Group have completed market rules and implementation plans for review and endorsement by the senior committees. Special MIC meetings devoted exclusively to PRD took place on April 28, June 2, June 22, July 7 and August 8, 2010. These special meetings, as well as regular MIC meetings, engaged PJM staff, Members (including consumer advocates), and other interested entities (including retail regulatory authorities) in review, refinement and clarification of the PRD market rules.[13] As noted above, PJM presented a fully-developed set of PRD rules to its stakeholders at a meeting of the MIC on August 18, 2010, but the proposed rules failed a vote at that meeting to move the proposal to the MRC. While the PRD package did not garner sufficient votes at the August 18, 2010 MIC to be moved to the MRC, many PJM Member representatives expressed support for the PRD concept. As noted above, at

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[11] See National Potential for Demand Response Report to Congress at 8 (June 10, 2009) (PRD supported by automated response will produce the greatest demand response impact).

[12] *Comments on Notice of Proposed Rulemaking of PJM Interconnection, L.L.C.*, Docket No. RM10-17-000 (May 13, 2010). *See* PJM's recommendation on pages 24 and 25 to provide a two year phase-in period to give the retail regulatory authorities time to review and react to any changes in compensation paid to Curtailment Service Providers for demand response.

[13] *See* http://www.pjm.com/committees-and-groups/issue-tracking/issue-tracking-details.aspx?Issue={CD79A76A-E9E4-4F58-ADF9-88A65F2B61EB}

the request of PJM Members, PRD was placed on the September 15, 2010 MRC agenda for a vote; but, this item was subsequently withdrawn on September 14, 2010 because the MIC committed to holding several stakeholder meetings with the goal of completing a PRD proposal that could be considered for a vote at the November 2010 MRC and MC meetings.[14] The PJM stakeholders are currently acting on a timeline that would enable implementation of PRD in the May 2011 RPM auction for the 2014/2015 Delivery Year.

All of the participants recognize that wholesale PRD market rules will not work unless they are properly integrated with evolving retail market rules. This precept has guided the development of wholesale PRD rules from the qualification process, to the wholesale and retail pricing requirements, to penalties for the failure of PRD to reduce during an emergency event, to the transition to commitment of PRD without annual MW limitations. To this end, PJM appreciates the leadership and input of a number of retail regulators in the PJM footprint.

By way of illustration of why PRD market rules will not work unless they are properly integrated with evolving retail market rules, consider the Measurement, Quantification and Reporting of PRD. The Measurement, Quantification and Reporting element of PRD within the Roadmap includes a requirement that the retail market "quantify and report actual Price Responsive Demand by location in a consistent and accurate manner."[15] The wholesale market then uses the price quantity data provided by the Load Serving Entity ("LSE") to create a "Forecast Demand Response Curve for each zone (aggregate or node)" that will be incorporated into the Unit Dispatch System ("UDS").[16]

Moving beyond the concepts of the Roadmap to market rules has been a challenge for the PJM stakeholders. The difficulty notwithstanding, a set of market rules were developed that respect the flexible development of various dynamic retail rate alternatives, such as critical peak pricing ("CPP") and critical peak rebate ("CPR") that have been piloted at the retail level in the PJM region, as well as the requirements of the PJM Security Constrained Economic Dispatch ("SCED") that nodal price signals trigger the dynamic retail rates for affected end-use customers. PJM recognizes that the retail rate development is the purview of state regulators and the wholesale market must accommodate various dynamic rate structures. These market rules allow LSEs to implement CPP and CPR dynamic retail rates that will be triggered when nodal LMPs reach predetermined level(s). In other words, the changes in usage of end-use customers who choose CPP or CPR retail rates must be linked to the nodal prices that the SCED understands and can use to more efficiently dispatch the grid. Additionally, PJM concurrently pursued with vendors a prototype of the system enhancements

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[14] MIC PRD meetings are tentatively scheduled to be held on: September 21, 2010, October 4, 2010, October 15, 2010, and November 4, 2010.

[15] *See* "*The Demand Response Roadmap for the PJM Region*", PJM Demand Response Symposium III, at Table 2 at 23 (*available at*:http://www.pjm.com/~/media/committees-groups/stakeholder-meetings/dr/drs-III/20091109-dr-road-map-convino.ashx).

[16] *Id.*

required to integrate PRD in the Energy Market. This work is in the requirements and functional design stage.

From March to present, PJM continued its ongoing outreach within the PJM region to retail regulatory authorities, electric distribution companies ("EDCs") and LSEs beginning with those involved in AMI pilots, those awarded ARRA funds to deploy AMI or pilot/research aspects of SmartGrid, or those required to meet usage and/or peak reduction goals. PJM continues to monitor both the progress of current AMI pilots and/or the post pilot plans featured or reported at the 2009 Symposium, including, but not limited to: Commonwealth Edison (Energy Smart Pricing Program), Baltimore Gas and Electric (Smart Energy Savers Program), PPL Corporation, Philadelphia Electric Company, PSE&G (myPower Pilot Program), PEPCO (PowerCentsDC), Delmarva Power and Indiana & Michigan Power. Furthermore, the matrices entitled "State Goals for Energy Efficiency and Demand Response in the PJM Footprint" and "Recovery Act Selections for Smart Grid Investment Grant Awards in the PJM Footprint," appended as Attachments "A" and "B" respectively, demonstrate the wide range of activity and requirements among the 13 states and the District of Columbia in the PJM region.

PJM interactions with both retail regulatory authorities and the EDC's they regulate has revealed a determination to avoid the "Bakersfield Effect".[17] The timing and other challenges of deploying AMI using ARRA funds played out recently in the initial rejection by the Maryland Public Service Commission of BG&E's Phase 2 Smart Grid Initiative.[18] These developments may portend a somewhat longer timeframe for deploying AMI and implementing the dynamic retail rates that will enable PRD. This should not, however, signal a like delay of the wholesale market rules required to enable PRD because the Reliability Pricing Model procures capacity three years in advance. Authority for PRD to participate in the Base Residual Auction to be held in May of 2011 means that PRD's first test as a component of the capacity market will begin on June 1, 2014.

The added ability to manage capacity obligations is a primary driver of PRD for retail regulatory authorities.[19] The bulk of the PRD market rules developed by the stakeholders provide the wholesale framework to meet this primary objective.

Two other PJM initiatives have important implications for PRD: the related shortage pricing compliance filing made on June 18, 2010 (as noted above), and the PJM staff proposal to add an opportunity for "unlimited" load reduction capability

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[17] The Bakersfield Effect refers to the customer backlash experienced in part of the Pacific Gas & Electric Company California franchise in response to the 2009 AMI deployment.

[18] *See In the Matter of the Application of Baltimore Gas and Electric Company for Authorization to Deploy a Smart Grid Initiative and to Establish a Surcharge for the Recovery of Cost*, Case No. 9208 (Public Service Commission of Maryland June 21, 2010)(denying Baltimore Gas and Electric Company's ("BGE") application), *granted subject to conditions* (August 13, 2010).

[19] See Centolella/Ott Whitepaper at 14 (PRD should not have to purchase capacity for demand which would not be present at higher spot prices).

participation in the capacity market alongside the existing Load Management[20] resources that are limited to ten (10) calls per summer not to exceed six (6) consecutive hours per call.

PJM filed its shortage pricing proposal in compliance with the Commission's Final Rule issued in Order No. 719, after a year of PJM stakeholder discussions could not produce a consensus on how to address the Commission's Order No. 719 requirement that RTOs either revise their tariffs to ensure that the market price for energy during times of operating reserve shortage accurately reflects the true value of energy or demonstrate the adequacy of their existing market rules.[21] The fundamental features of the PJM shortage pricing proposal include: a new cost based market for Non-synchronized reserves capable of responding within ten (10) minutes, joint optimization of energy and reserve markets in real time, a reserve penalty factor of $850/MWh incorporated into the determination of the market clearing price during a reserve shortage, enhanced price setting capability for emergency demand response, emergency purchases and generation from the emergency segments of the unit's schedule, and continued application of existing market power mitigation rules during reserve shortage conditions. The intention of the proposal is to ensure that market prices provide clear signals to the greatest number of available generation and demand response resources and produce more efficient market outcomes.

While PRD is not a prerequisite to the shortage pricing proposal, the shortage pricing proposal and PRD market design are intended to complement and enhance each other. PRD demand curves submitted to PJM by LSEs will be an added input into the dispatch algorithm in the same way as generation offer curves. When the system experiences a reserve shortage, the market price of $1,000 or higher, given the applicable reserve penalty factor, will signal PRD load to reduce. The shortage pricing comments submitted by the Public Utilities Commission of Ohio describe well the interplay between shortage pricing and PRD as follows:

> Scarcity prices refine and provide part of the incentives that ensure the system has adequate resources to match consumer needs and preferences. A reasonable approach to scarcity pricing will create efficiency benefits and lower costs to consumers by shifting revenue from capacity

[20] Load Management is defined in the PJM Tariff as either a Demand Resource ("DR") or an Interruptible Load for Reliability ("ILR") resource, both as defined in the PJM RAA. *See* PJM Tariff, Attachment K-Appendix, Section 1.3.11.01. Demand Resource is defined as a resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of Schedule 6 that offers and that clears load reduction capability in a Base Residual Auction or Incremental Auction or that is committed through an FRR Capacity Plan. As set forth in Schedule 6, a Demand Resource may be an existing demand response resource or a Planned Demand Resource. *See* PJM RAA, Section 1.13. Interruptible Load for Reliability is defined as a resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of Schedule 6 that is certified by PJM no later than three months prior to a Delivery Year. *See* PJM RAA, Section 1.42.

[21] Order No. 719 at PP 192, 194.

> markets to energy and ancillary service markets. Scarcity price signals in the energy and ancillary service markets improve system efficiency by providing incentives to have additional demand response and resources precisely when and where they are needed. These incentives would work, in large part, by providing the wholesale price signals that state commissions and retail electric suppliers would use to develop dynamic retail prices. And, the enhanced retail pricing could give consumers greater control over their electricity bills.[22]

Load Management has grown significantly in recent years. The graph below (labeled Figure 1), documents the year over year growth of Load Management participation in the capacity market.

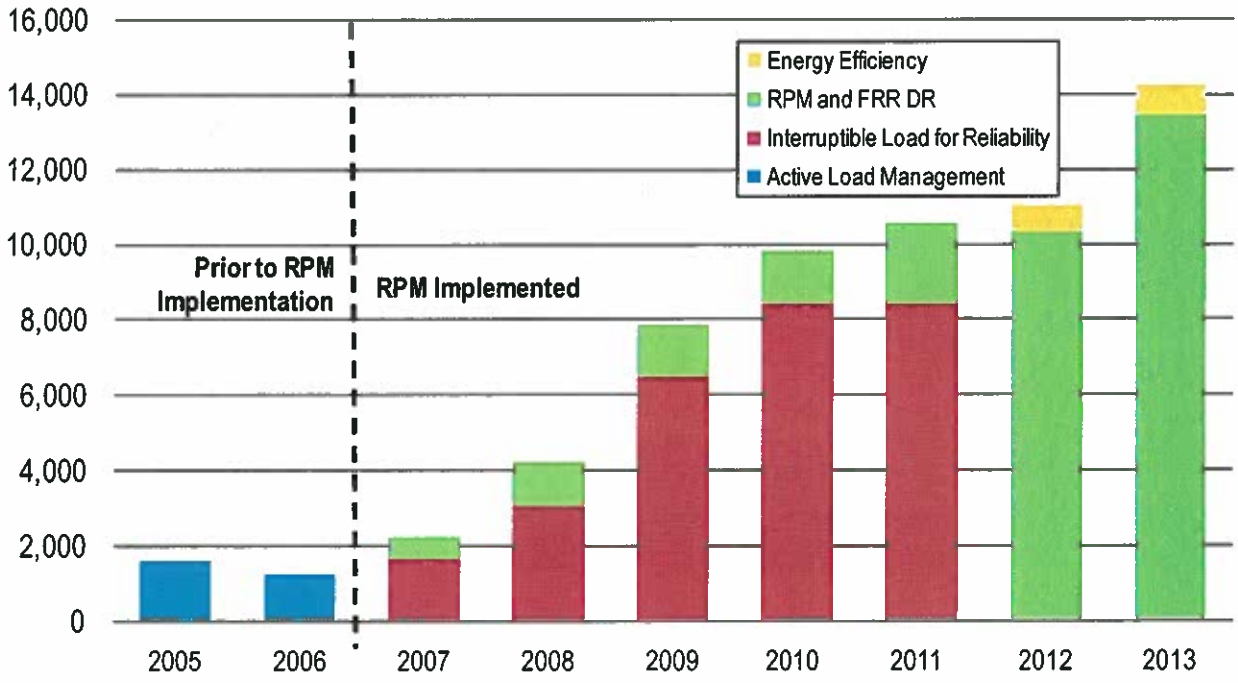

Figure 1

The capacity market pays the same dollars per MW-day for each MW of Load Management, generation or energy efficiency. Market rules, however, limit the obligation of Load Management to reduce a maximum of ten (10) times during the summer period for a maximum of 6 consecutive hours per event based on an assumption that Load Management will not exceed 7.5% of the forecasted unrestricted peak load. Given these limitations and assumptions together with actual Load Management commitments approaching 7.5% of the forecasted unrestricted peak load, PJM's Resource Adequacy Planning Department completed a "Demand Response

[22] *See Comments on PJM's Compliance Filing Submitted on behalf of the Public Utilities Commission of Ohio* at 10, Docket No. ER09-1063-004 (July 30, 2010).

Saturation Analysis" in May of this year.[23] The analysis explored the relationship between the limited performance obligation and the related limit on Load Management as a percentage of the unrestricted peak load. The analysis showed, for example, that the number of consecutive hours of reduction would need to increase from six (6) to ten (10) in order to maintain the number of interruptions at ten (10) and to permit a Load Management level equal to 8.5% of PJM's unrestricted peak load.

These findings prompted PJM staff to propose a solution that both preserved existing Load Management subject to some combination of interruptions, consecutive hours and unrestricted peak load percentage limits, and that created a new capacity market opportunity for demand response resources willing and able to reduce any time of the year for a maximum of ten (10) consecutive hours reduction per event. This new capacity market opportunity has been called an "unlimited" demand response product. The PJM stakeholders are presently considering the PJM staff proposal. An unlimited capacity market opportunity for demand response resources will go hand-in-hand with PRD since there would be no limits in either case on the number of times or time of year when such demand response could be triggered.

With the foregoing in mind, PJM believes that a complete PRD proposal including Tariff language, RAA revisions, manual provisions and a plan and timeline for resolving implementation details and considering issues of parity (between demand response as a supply side resource and PRD) has been developed and is being refined through the stakeholder process.

III. PRD Integration – Next Steps

PJM believes that PRD provides an important new option for development of the demand side of the wholesale and retail electricity markets. The stakeholders have expressed strong support for the PRD concept. PJM has presented a fully-developed set of PRD rules to the stakeholders together with a process for addressing implementation details well before the beginning of the 2014/2015 delivery year. The timeline for PRD implementation in PJM has already slipped one year as described above. However, as discussed above, the MIC is committed to meeting repeatedly during the next few months, with a goal of completing a PRD proposal that could be considered for a vote at the November 2010 MRC and MC meetings. Therefore, PJM stakeholders are currently acting on a timeline that may enable implementation of PRD in the May 2011 RPM auction for the 2014/2015 Delivery Year. Nonetheless, given the intense competing interests of its stakeholders with respect to PRD, PJM may return to the Commission to provide further details on the status of these September through November, 2010 MIC meetings, and to seek further guidance from the Commission in order to pursue timely development and implementation of PRD.

[23] Demand Resource Saturation Analysis, PJM Resource Adequacy Planning Department, May 2010.

IV. Correspondence

The following individuals are designated for inclusion on the official service list in this proceeding and for receipt of any communications regarding this filing:

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V. Service

PJM has served a copy of this filing on all PJM Members and on all state utility regulatory commissions in the PJM Region by posting this filing electronically. In accordance with the Commission's regulations,[24] PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: http://www.pjm.com/documents/ferc-manuals.aspx with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in the PJM Region[25] alerting them that this filing has been made by PJM today and is available by following such link.

Respectfully submitted,

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[24] *See* 18C.F.R §§ 35.2(e) and 385.2010(f)(3).
[25] PJM already maintains, updates and regularly uses e-mail lists for all PJM members and affected commissions.

Attachment A

State Goals for Energy Efficiency and Demand Response in the PJM Footprint – *as of September 2010*

State	Energy Efficiency (Energy Use Reduction) Goal	Demand Response (Peak Load Reduction) Goal
Delaware	2% by 2011 and 15% by 2015 (base year 2007)	2% by 2011 and 15% by 2015 (base year 2007)
District of Columbia	None in place or proposed	None in place or proposed
Illinois	Incremental energy savings of 0.2% (two tenths of one percent) each year over the prior year from 2008 to 2015 (2% by 2015 and every year thereafter	Reduction of 0.1% (one tenth of one percent) over the prior year each year for 10 years (starting in 2008) for eligible retail customers
Indiana	An "overall annual energy efficiency savings goal of 2% to be achieved by jurisdictional electric utilities …within 10 years, with interim savings goals…to be achieved in years one through nine". Those interim goals are 0.3% in 2010, 0.5% in 2011, 0.7% in 2012, 0.9% in 2013, 1.1% in 2014, 1.3% in 2015, 1.5% in 2016, 1.7% in 2017 1.9% in 2018 and 2.% in 2019.	None in place or proposed
Kentucky[1]	Offset at least 18% of the state's projected 2025 energy demand	Offset at least 18% of the state's projected 2025 energy demand
Maryland	5% by the end of 2011 and 10% by the end of 2015 in per capita electricity consumed in each electric company's service territory during 2007 5% reduction by the end of 2015 in per capita electricity consumed (Maryland Energy Administration)	5% by the end of 2011, 10% by the end of 2013, and 15% by the end of 2015 in per capita peak demand of electricity consumed in each electric company's service territory during 2007
Michigan	An electric providers energy optimization programs must collectively achieve minimum energy savings based on total annual retail electricity sale of 0.3% in years 2008 - 2009, 0.5% in 2010, 0.75% in 2011 and 1% in 2012, 2013, 2014 and 2015. The "total annual retail electricity sale" refers to the weather normalized total annual retail electric sales in megawatt hours for the prior year	An electric providers energy optimization programs must collectively achieve minimum energy savings based on total annual retail electricity sale of 0.3% in years 2008 - 2009, 0.5% in 2010, 0.75% in 2011 and 1% in 2012, 2013, 2014 and 2015. The "total annual retail electricity sale" refers to the weather normalized total annual retail electric sales in megawatt hours for the prior year
New Jersey[2]	20% by 2020 (starting in 2010)	5,700 MW[3] by 2020 (starting in 2010)

[1] Goals in statewide energy plan, not legislation

[2] Goals in New Jersey's *Energy Master Plan*, not legislation and are subject to change in the near future

[3] A combination of energy efficiency (3,300 MW), combined heat and power (1,500 MW), and demand response programs (900 MW). Subject to change in the near future.

State	Energy Efficiency (Energy Use Reduction) Goal	Demand Response (Peak Load Reduction) Goal
North Carolina	Energy efficiency and renewable energy power savings of 3% of prior-year electricity sales in 2012, 6% in 2015, 10% in 2018, and 12.5% in 2021 and thereafter; energy efficiency is capped at 25% of the 2012-2018 targets and at 40% of the 2021 target (electric public utilities) Energy efficiency and renewable energy power savings of 3% of prior-year electricity sales in 2012, 6% in 2015, 10% in 2018 and thereafter (electric membership corporations and municipalities)	None in place or proposed
Ohio	Savings of at least 0.3% of the total, annual average and normalized kWh sales of the electric distribution utility during the preceding three calendar years to customers in the state, an additional 0.5% in 2010, 0.7% in 2011, 0.8% in 2012, 0.9% in 2013, 1% from 2014 to 2018, and 2% each year thereafter, achieving a cumulative, annual energy savings in excess of 22% by the end of 2025	1% in 2009 and an additional 0.75% each year through 2018
Pennsylvania	1% of 2009-2010 sales by May 31, 2011, increasing to 3% by May 31, 2013 (10% of reductions is to come from federal, state, and local government, including municipalities, school districts, institutions of higher education, and nonprofit entities)	4.5% of 2009-2010 sales by May 31, 2013 (10% of reductions is to come from federal, state, and local government, including municipalities, school districts, institutions of higher education, and nonprofit entities)
Tennessee	None in place or proposed	None in place or proposed
Virginia	10% (from 2006 levels) by 2022	None in place or proposed
West Virginia	Earn credits equivalent to 10% of the electric energy sold in the prior year (2015-2019), 15% (2020-2024), and 25% (2025 and thereafter); one credit earned for each MWh conserved	Earn credits equivalent to 10% of the electric energy sold in the prior year (2015-2019), 15% (2020-2024), and 25% (2025 and thereafter); one credit earned for each MWh conserved

Sources: PJM, ACEEE, FERC, Delaware General Assembly, Michigan Legislature, New Jersey's *Energy Master Plan*, North Carolina General Assembly, Ohio General Assembly, West Virginia Legislature

Attachment B

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS IN PJM FOOTPRINT – AS OF SEPTEMBER, 2010

HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Total Project Value Including Cost Share	Map of Project Coverage Area
Illinois	Naperville	**City of Naperville, Illinois**	Deploy more than 57,000 smart meters and install the infrastructure and software necessary to support and integrate various smart grid functions and the two-way flow of information between the utility and customers.	$10,994,000	$21,988,000	http://www.energy.gov/recovery/smartgrid_maps/CityofNaperville.JPG
Maryland	Baltimore	**Baltimore Gas and Electric Company**	Deploy a smart meter network and advanced customer control system for 1.1 million residential customers that will enable dynamic electricity pricing. Expand the utility's direct load control program, which will enhance grid reliability and reduce congestion.	$200,000,000	$451,814,234	http://www.energy.gov/recovery/smartgrid_maps/BaltimoreGasElectric.JPG
New Jersey	Mays Landing	**Atlantic City Electric Company**	Deploy 25,000 direct load control devices, intelligent grid sensors, automation technology, and communications infrastructure to enhance grid reliability, optimize the grid's operations, and empower consumers to better manage and control their energy usage. Will also benefit customers in DC and MD.	$18,700,000	$37,400,000	http://www.energy.gov/recovery/smartgrid_maps/AtlanticCityElectric.JPG
Ohio	Akron	**FirstEnergy Service Company**	Modernize the electrical grid and reduce peak energy demand by leveraging the crosscutting nature of different smart grid technologies, including significant communication and information management systems, deploying a smart meter network and automating the distribution system. Will also benefit customers in PA.	$57,470,137	$114,940,273	http://www.energy.gov/recovery/smartgrid_maps/FirstEnergy.JPG

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Pennsylvania	Philadelphia	**PECO Energy Company**	Deploy smart meters to all 600,000 customers, upgrade communication infrastructure to support a smart meter network, install 7 "intelligent" substations, and accelerate deployment of more reliable and secure smart grid technologies that will reduce peak energy load and increase cost savings.	$200,000,000	$422,570,000	http://www.energy.gov/recovery/smartgrid_maps/PECOEnergy.JPG
	Allentown	**PPL Electric Utilities Corp.**	Deploy a distribution management system and smart grid technologies to monitor and control the grid in real-time, improve system reliability and energy resource optimization, and provide the infrastructure for distributed generation and broader energy efficiency efforts.	$19,054,516	$38,109,032	http://www.energy.gov/recovery/smartgrid_maps/PPL.JPG
	Norristown	**PJM Interconnection, LLC**	Deploy over 90 phasor measurement units and other digital monitoring and analysis technologies across 10 states that will provide real-time data on the operating conditions of the transmission system, improving reliability and reducing congestion. Will also benefit customers in IL, IN, KY, MD, MI, NC, NJ, OH, PA, VI, and WV.	$13,698,091	$27,840,072	http://www.energy.gov/recovery/smartgrid_maps/PJM.JPG
	Wellsboro	**Wellsboro Electric Company**	Implement the "Smart Choices" project, which will deploy smart meter network systems throughout the utility's service territory.	$431,625	$961,195	http://www.energy.gov/recovery/smartgrid_maps/WellsboroElectric.JPG

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Virginia	Manassas	**Northern Virginia Electric Cooperative**	Expand substation and distribution automation and control, including adding a new two-way communication infrastructure to the existing fiber optic and microwave communications, which will improve system reliability and reduce peak demand.	$5,000,000	$10,000,000	http://www.energy.gov/recovery/smartgrid_maps/NorthernVirginia.JPG
Washington DC	Washington DC	**Potomac Electric Power Company (PEPCO)**	In the Maryland service area, install 570,000 smart meters with network interface; institute dynamic pricing programs, and deploy distribution automation and communication infrastructure technology to enhance grid operations.	$104,800,000	$209,600,000	http://www.energy.gov/recovery/smartgrid_maps/PEPCOMD.JPG
	Washington DC	**Potomac Electric Power Company (PEPCO)**	Install 280,000 smart meters equipped with the network interface, institute dynamic pricing programs, and deploy distribution automation and communication infrastructure technology to reduce peak load demand and improve grid efficiency. Will also benefit customers in MD.	$44,600,000	$89,200,000	http://www.energy.gov/recovery/smartgrid_maps/PEPCODC.JPG

A total of over $674 million in Department of Energy (DOE) dollars has been allotted to Smart Grid projects in the PJM footprint.

The total investment in Smart Grid projects in the PJM territory, including the companies' shares, will be more than $1.4 billion.