

VIA ELECTRONIC AND FIRST CLASS MAIL

March 8, 2010

John Reynolds
Chair, Load Analysis Subcommittee
PJM Interconnection L.L.C.
955 Jefferson Avenue
Norristown, PA

Steven Herling
Chair, Planning Committee
PJM Interconnection L.L.C.
955 Jefferson Avenue
Norristown, PA

Re: Request for Consultant Review of PJM's Load Forecasting Methodology

Dear Messrs. Reynolds and Herling:

The undersigned represent residential, commercial and industrial consumers; state regulators and consumer protection agencies; and load-serving entities on the PJM system--the parties that both benefit from and pay the cost of the reliability of the PJM system. As you will recall, on December 11, 2008, a similar group of seventeen stakeholders wrote to you raising concerns about PJM's draft 2009 load forecast and requesting a stakeholder process to review the load forecasting methodology.¹ Within that stakeholder process in 2009, many questions were raised and many issues were discussed.

However, as described further in this letter, significant changes are underway that present new challenges to peak load forecasting and that call for proactive efforts to ensure that PJM's load forecasting methodology realistically reflects the resource needs to meet reliability requirements. Consequently, the undersigned are writing to request that PJM retain an independent consultant to review its peak load forecasting methodology and make recommendations. As part of that process, a polling of the load serving entities and/or PJM Transmission Owners might be in order to determine the trends they are seeing in their growth patterns as a result of the issues cited

¹ *Re: Draft 2009 PJM Load Forecast and Report*, letter to Mr. John Reynolds, Chair, PJM Load Analysis Subcommittee and Mr. Steve Herling, Chair, PJM Planning Committee, signed by seventeen entities representing state utility commissions, consumer advocates, industrial customers and public power entities, December 11, 2008 (Attachment 1).

below. Our goal in requesting this review is to ensure that the load forecast is as accurate as possible and is adapted as necessary for changing circumstances.

The last consultant review of PJM's load forecasting methodology was in 2006,² and it resulted in some modifications to the methodology. However, much has changed (or continued to change) since that review:

1. The PJM RTO's peak load growth has slowed over the past several years (Figure 1), which trend is apparently not entirely explained by the economic slowdown since late 2007.
2. A severe recession caused PJM's peak load to decline in 2009. Anecdotally, there has been some permanent industrial demand destruction within the RTO footprint. PJM has revised its forecasts for 2009, 2010 and 2011 downward by over 5,000 MW.
3. PJM's peak load forecasts are highly sensitive to the assumed economic forecast, as Figure 1 suggests. However, at present there is enormous uncertainty about economic growth and a wide range between the projections of various economic forecasters.
4. After a long period of stability, retail electricity prices in the PJM footprint have risen 40% since about 2004 (based on EIA data; Figure 2), partly due to higher fuel costs, partly due to more retail customers being exposed to wholesale prices, and partly due to the addition of new market design modules (most notably the Reliability Pricing Model).
5. Policies at the state and federal levels promoting greater efficiency in electricity use and reductions in consumption at peak times have been further strengthened, and at least five states within the PJM region have enacted and are implementing legislation to mandate significant reductions in load and demand within the PJM region.³
6. PJM is presently developing a shortage pricing mechanism that, if approved, could result in much stronger incentives to reduce consumption at peak times.
7. There is a big push underway to develop the smart grid, including advanced meters, and to realize much greater price-responsiveness in electricity demand. Last year PJM stated that it "expects significant progress in developing price responsive demand within the next three years."⁴

These developments are substantially new or changed since the 2006 review of PJM's peak load forecasting methodology, and we are concerned that some significant modifications to the existing methodology may be needed to adapt to and accurately project future peak loads under these changing circumstances. We believe a consultant's review of the methodology would be valuable in identifying alternatives. The scope of the review should also include the development of the "90/10" peak load forecasts and the probabilistic forecasts of peak load that

² The Brattle Group, *An Evaluation of PJM's Peak Demand Forecasting Process*, December 5, 2006.

³ Delaware - (SB106, Energy Conservation and Efficiency Act of 2009, Jul. 2009) - peak demand reduction; Pennsylvania - (Act 129, November 14, 2008), Demand Response, targeted usage and peak demand reduction, AMI;

Ohio - (SB 221, July 31, 2008) Demand Side Management, AMI, distributed generation, time differentiated pricing; Illinois - (SB 1592, Illinois Power Agency Act, August 28, 2007) peak demand reduction; Maryland - (HB 374, SB 205, EmPOWER Energy Efficiency Act, April 5, 2008) Demand Side Management, targeted usage and peak demand reduction.

⁴ Statement of Terry Boston, President and CEO, on behalf of the PJM Board of Managers: *Demand Response in the PJM Markets*, June 26, 2009.

are used in PJM's Load Deliverability ("CETO") Analyses. We also request that PJM solicit stakeholder input on other related questions that could be addressed in the consultant's review as the detailed scope of work is developed. In addition, the signatories ask for the opportunity for stakeholders to review and have opportunity, with a short window for comment, to make input to PJM and the consultant on a "preliminary" report from the consultant to ensure that all stated issues are covered.

As noted in the December 11, 2008 letter referenced above, the load forecast is a major determinant of the quantity, price, and cost of capacity procured through PJM's Reliability Pricing Model. It is estimated that each 1% of change in the peak load forecast translates into approximately \$500 million in costs to load entities—a very significant impact. PJM's load forecasts are also a major input to the analysis of need for new transmission lines within PJM's RTEP process. Consequently, it is extremely important that PJM and stakeholders can be confident that PJM's forecasts project as accurately as possible changes in peak load over the coming years without compromising reliability.

We appreciate your thoughtful consideration of our request for a consultant review of PJM's load forecasting methodology.

Sincerely,

/s/ James A. Jablonski
James A. Jablonski

Executive Director
Public Power Association of New Jersey

/s/ Duane S. Dahlquist
Duane S. Dahlquist

General Manager
Blue Ridge Power Agency

/s/ William F. Fields
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/s/ Chris Norton
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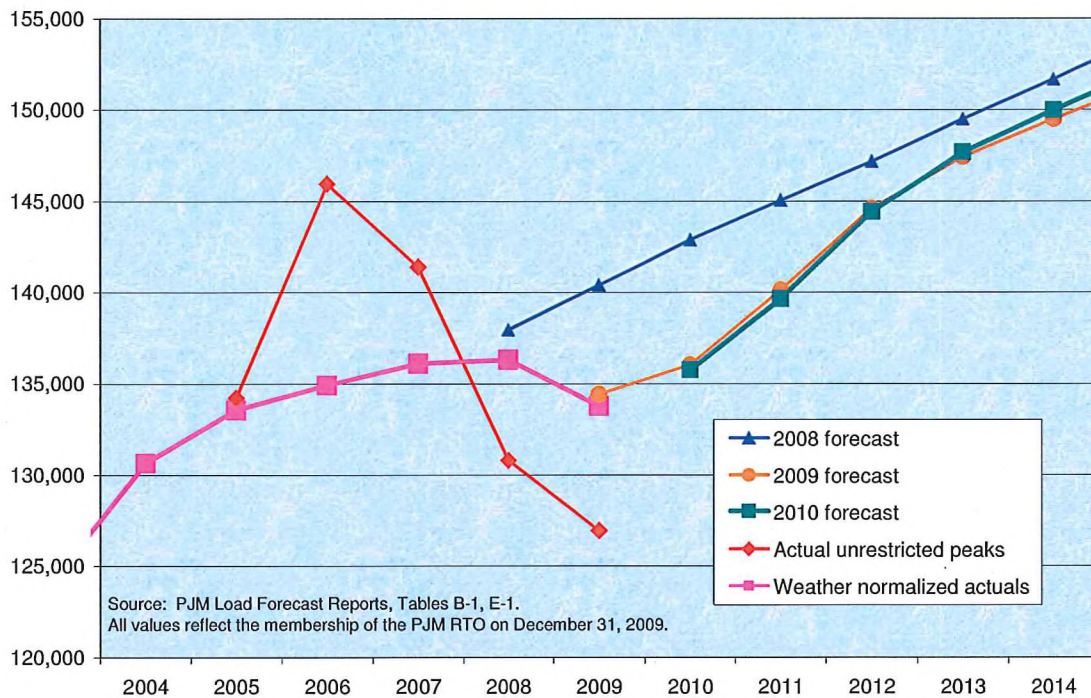
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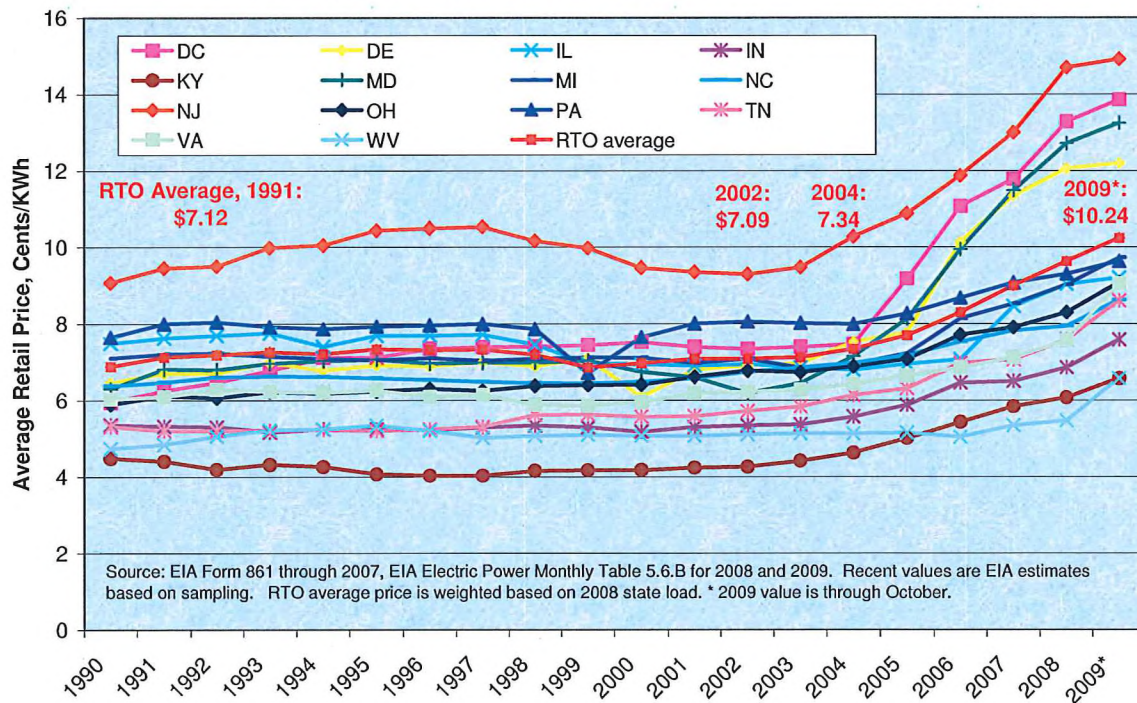
Chairman
Public Service Commission of Maryland

cc: Mike Kormos, Senior Vice President – Operations, PJM

Figure 1: PJM RTO Peak Loads and Forecasts



**Figure 2: PJM RTO States' Average Retail Electricity Prices
(average nominal retail prices across all customer sectors)**



September 2, 2014

Howard Schneider, Esq.
Chair, Board of Managers
PJM Interconnection, L.L.C.
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Southeastern, PA 19399

**RE: *Ex Parte* Communication on Triennial Review and Capacity
Performance: Request To Defer Action on Proposals To Modify VRR
Curve**

Dear Mr. Schneider:

By this letter, the undersigned PJM Members, state commissions, and PJM stakeholders (hereinafter, "Load Coalition") respectfully request the PJM Board of Managers defer action on any proposed changes to the Variable Resource Requirement ("VRR") curve shape as part of the current Triennial Review process. As explained below, the Load Coalition's objection to any proposed changes to the VRR curve shape is based on both substantive and procedural concerns.

In addition, through the pending Capacity Performance initiative, the Board is considering material changes to PJM's Reliability Pricing Model ("RPM"). The impacts of such changes on PJM's recommendations produced in the Triennial Review have not been considered within the stakeholder process. Reasoned decision making supports deferring Board action on any proposal to modify the VRR curve, and indeed other key components of the Triennial Review where no consensus exists (*i.e.*, Cost of New Entry ("CONE") and Energy and Ancillary Services ("E&AS") Offset) so the Board may ensure the interrelated parts of RPM work together appropriately to satisfy the applicable reliability standards while still honoring the Federal Power Act's "just and reasonable rates" standard.

**Any Changes to the VRR Curve Shape, CONE or E&AS Offset Are, At Best, Premature
in Light of Other, Ongoing RPM Initiatives**

At the August 21 Markets and Reliability Committee ("MRC") meeting where PJM members considered different Triennial Review packages, the Load Coalition was concerned to learn that PJM views the Triennial Review and Capacity Performance initiatives as separate and distinct, with the Triennial Review focusing on the robustness of RPM's forward price signal and the Capacity Performance initiative focusing on the definition of what it means to be a Capacity Resource in PJM. The Load Coalition cannot understand PJM Staff's view, especially given PJM's recent request that the Federal Energy Regulatory Commission ("Commission") defer action on its Section 206 proceeding on PJM's Capacity Replacement filing in favor of a "more orderly approach ... so that it may consider any Capacity

Performance filing which PJM would file in the December time frame."¹ The Load Coalition views the Triennial Review to be at least as closely linked, if not more so, with the Capacity Performance initiative than the Replacement Capacity effort may be, particularly because PJM's proposed VRR curve shape has been shown individually by PJM's own simulations to procure capacity materially beyond what would be required to meet our resource adequacy objectives.²

Based on our preliminary understanding of the Capacity Performance effort, profound interaction exists between the Triennial Review and this new initiative. By adding new products and redefining existing products, the Capacity Performance initiative, if proposed and approved by the Commission, will substantively impact the offers submitted by certain PJM Capacity Resources, yielding an impact for all cleared resources that may mimic aspects of PJM's proposal to "right-shift" the VRR curve. Secondly, market power is implicated when fleet owners with a diversified portfolio may have a range of flexibility in their market participation. By creating two classes of annual capacity products, the potential to exercise market power by withholding Capacity Performance Resources is only exacerbated by a steeper demand curve. Furthermore, as supply offers and clearing prices increase because of any revisions to the definition of what it means to be a Capacity Resource, certain underlying assumptions in The Brattle Group's ("Brattle") Triennial Review Report that were the basis of PJM's VRR curve recommendations may become moot.

It is also reasonable to expect the price tag of exceeding the required average 1-in-10 Loss of Load Expectation ("LOLE") standard will be even more costly from a customer perspective due to the Capacity Performance initiative, a key factor that should be considered by the Board when evaluating the "value proposition." Yet, there has been no analysis, not even an acknowledgement from PJM Staff, that the Triennial Review, and, in particular, the VRR curve adjustments are inextricably intertwined with the Capacity Performance initiative. Accordingly, the Board must exercise its judgment to ensure that these significant RPM changes do not proceed without a thorough and modeled assessment and evaluation of how these proposals relate to each other.

The transition from a "Triennial Review" to a "Quadrennial Review" intensifies the need for caution in proposing changes to RPM that do not recognize the pending Capacity Performance initiative. With the shift to a Quadrennial Review, the key components of RPM are reviewed now every four years. Thus, any decision to modify RPM may remain in place

¹ PJM Interconnection, L.L.C., Letter to Secretary Bose, Docket Nos. ER14-1461-000, -001, 002, and EL14-48-000 – Not Consolidated (Aug. 18, 2014)(<http://www.pjm.com/~media/documents/ferc/2014-filings/20140818er141461000%20001%20002%20and%20el1448000.ashx>).

² Moreover, the Capacity Performance initiative contemplates changes to RPM that are broad enough to suggest that Brattle's assumptions of RPM "equilibrium" may not be applicable, further supporting the Load Coalition's recommendation that the Board defer action on the VRR curve.

for at least four years. The long-term ramifications of any action on this Triennial Review, when other fundamental RPM changes are being considered, must be considered.

Proposed Changes to the VRR Curve Shape Have Not Been Justified or Adequately Vetted

To the extent that the Board does not defer action on this Triennial Review, the Load Coalition respectfully requests that the Board maintain the status quo on the VRR curve shape. The Load Coalition's concerns about PJM Staff's proposed change to the VRR curve have been shared with PJM Staff throughout the Capacity Senior Task Force process.

As the Board is aware, PJM plans to a resource adequacy standard of a Loss of Load Expectation of one firm load shed event in 10 years (*i.e.*, 1-in-10 LOLE). Recent Commission precedent confirms the Federal Power Act's just and reasonable standard is satisfied by meeting the chosen reliability standard on average over time.³ Notwithstanding this recent FERC precedent, PJM's proposed VRR curve in the current Triennial Review process is more aggressive than PJM's own consultant recommends and produces an average LOLE approximating 1-in-16.7, which greatly exceeds the average 1-in-10 LOLE standard – even using Brattle's modeling assumptions that the Load Coalition believes greatly overstate volatility and reliability risk.

From the outset of this Triennial Review process, the Load Coalition has had serious concerns even about the basis for Brattle's recommendation to modify the VRR curve. In its Report commissioned by PJM, Brattle concluded that, at long-term equilibrium (defined at capacity prices around the Net Cost of New Entry), the current VRR curve would not meet an average 1-in-10 LOLE criteria and was instead on the order of 1-in-8.3. Accordingly, Brattle recommended modifying the VRR curve with a shift to the right of Point A and proposed a convex shape relative to Point C to arrive at an average LOLE of 1 in 10.⁴

Brattle's analysis is flawed by assumptions that are highly unrealistic for a long-term equilibrium model, namely very large, random and unpredictable supply and demand "shocks," and very steep supply curves reflecting few resources offered at higher price ranges. In addition, Brattle's analysis is based on two assumptions that are theoretically reasonable but do not exist in practice, namely: (1) no bias in load forecast, and (2) no bias in the determination of Net CONE. Since the advent of the 2.5% holdback with the 2012/2013 Delivery Year, PJM's three-year forward load forecasts used in Base Residual

³ *ISO New England Inc.*, 147 FERC ¶ 61,173, at P 30 (May 30, 2014).

⁴ Interestingly, when Brattle examined its two proposed changes to the curve (1 – shifting point A; 2 – Convex shape), its analysis suggested that just shifting point A to right by itself produces an average LOLE of 1-in 10.4, which is slightly better than 1-in-10. Accordingly, making the curve convex actually results in decreased reliability.

Auctions have been, on average, in excess of 6% above the load forecast in place at the start of the actual Delivery Year. This level of over-forecasting would suggest that, whether due to the three-year forward nature of RPM or otherwise, there is, in fact, a significant upward bias in the load forecast. The Load Coalition also suggests that Net CONE is overstated given the empirical data of new entry volume and the continuing use of PJM's current levelization methodology.

The Load Coalition's reservations about Brattle's recommended changes to the VRR curve shape were exacerbated when PJM Staff went beyond Brattle's recommendation with a proposed additional rightward curve shift of 1%. Even using Brattle's unrealistic assumptions that overstate reliability risk, the PJM VRR curve proposal provides an average LOLE of 1-in-16.7, which is far in excess of the average 1-in-10 LOLE standard. On its own, separate and apart from the Capacity Performance initiative discussed above, the cost impact of PJM's proposed VRR curve is over \$4 billion over the next three Delivery Years:

2015/2016	\$1.4 billion (15% increase in RPM costs)
2016/2017	\$1.0 billion (18% increase in RPM costs)
2017/2018	\$1.7 billion (23% increase in RPM costs)

No analysis has been offered in the Triennial Review process to suggest that PJM's proposed VRR curve changes will bring any savings in the energy market nor, to the extent that any energy market savings were to materialize, the impact on Net CONE and the E&AS offset.

Moving beyond the target average 1-in-10 LOLE standard comes at a significant cost to customers. In this regard, the PJM Board should not confuse our concerns about cost as undercutting either our interest in reliability and our willingness to pay for that reliability. Members of this Load Coalition have the ultimate and overriding interest in supporting reliability in order to power our homes, meet customer expectations, and fuel our businesses. Members of this Load Coalition also have a compelling and overriding interest, however, in ensuring that the PJM market rules are cost-effective and reflect appropriate cost-benefit analyses, given that power markets do not inherently match the characteristics of textbook competitive markets. As virtually captive customers to the PJM markets, load must never be viewed by the PJM Board as offering a blank check. With the close nexus between energy markets and economic growth, the PJM Board has a serious responsibility to ensure not only reliable operations but also rates that are just and reasonable and not unduly discriminatory, as the Federal Power Act requires.

* * *

While reserving our rights, the Load Coalition respects the PJM Board's Section 205 right to file a proposal with the Commission that addresses the robustness of the VRR curve

Howard Schneider, Esq.
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shape.⁵ The Load Coalition respectfully requests, however, that the PJM Board not make such a filing now. At a minimum, the PJM Board should develop a comprehensive understanding of the ultimate costs to customers, the real and demonstrable system reliability needs, and the impact on our regional economy of all the various pending RPM changes and then make a determination about how to proceed. At this point, the picture is far too incomplete for the Board to make this determination.

At the August 21 MRC, the voting results reflect that a majority of PJM Members support retaining the status quo, including maintaining the current VRR curve shape. These voting results were affirmed by PJM Members at the subsequent Members Committee meeting. The Load Coalition encourages the Board to listen closely to this message sent by PJM Members in favor of maintaining the status quo and only consider modifications to RPM, including the VRR curve shape, after resolution of the Capacity Performance initiative.

Thank you for your consideration of our concerns.

Very truly yours,

/s/ Pamala M. Sullivan
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Senior Vice President Marketing & Operations
American Municipal Power, Inc.

/s/ Susan N. Kelly
Susan N. Kelly
President & Chief Executive Officer
American Public Power Association

/s/ Fred Ritts
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Attorney for Blue Ridge Power Agency

⁵ In the two prior triennial reviews – in 2008 and 2011 – Brattle endorsed the current VRR curve shape for both the "RTO" and Load Deliverability Areas ("LDAs") and proposed either no changes (2008) or only a very minor change. PJM has used this VRR curve shape now for eleven different Delivery Years to establish a total of 33 different clearing prices in several different zones as large as the RTO and as small as DPL South (3,160 MW).

Howard Schneider, Esq.
September 2, 2014
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/s/ Robert J. Howatt
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Jacqueline Lake Roberts
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CERTIFICATE OF SERVICE

In accordance with Rule 4901-1-05, Ohio Administrative Code, the PUCO's e-filing system will electronically serve notice of the filing of this document on the following parties. In addition, I hereby certify that a service copy of the foregoing *Direct Testimony of David A. Scarpignato* was sent by, or on behalf of, the undersigned counsel to the following parties of record this 22nd day of December 2014 via e-mail.



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Summary: Testimony Direct Testimony of David Scarpignato ATTACHMENTS 4 AND 5
electronically filed by M HOWARD PETRICOFF on behalf of Retail Energy Supply Association