



**STATE OF NEW JERSEY
Board of Public Utilities
ENERGY DIVISION**

IN THE MATTER OF THE BOARD'S : ORDER INITIATING
INVESTIGATION OF CAPACITY PROCUREMENT : PROCEEDING
TRANSMISSION PLANNING : Docket No EO 11050309

COMMENTS OF PJM INTERCONNECTION, L.L.C.

I. SUMMARY

PJM Interconnection, L.L.C. (PJM) recognizes that adequate generation supply and transmission to deliver it reliably is important to all PJM states. The importance is dramatically evident in New Jersey as officials seek to ensure their citizens have access to reliable and affordable electricity.

Wholesale markets and the rules that shape them are dynamic and appropriately are re-examined periodically by regulators – the Federal Energy Regulatory Commission (FERC) and the PJM states – PJM's 700 members, and other stakeholders to ensure PJM markets are meeting the needs of the region. In that spirit, PJM welcomes the opportunity to appear before the New Jersey Board of Public Utilities (Board) to discuss our role in preserving reliability and ensuring fair and efficient wholesale markets.

Two of the most important issues raised by the Board in this proceeding concern the possibility of power shortages from the delay in the Susquehanna – Roseland 500 kV transmission line (S-R line) and whether PJM's capacity market construct, the Reliability Pricing Model (RPM), results in higher electricity costs in New Jersey.



Although the risks of power shortages has increased due to the delay in the S-R line caused by the Federal environmental impact statement process, PJM has developed operational contingency plans, and will continue to refine those plans as we near 2012, to mitigate that possibility. Emergency procedures, such as voltage reductions or load-shedding, to avoid system disruptions are available but are not considered likely to be deployed in 2012.

As the name implies, RPM ensures that utilities and other Load Serving Entities (LSEs) can acquire the capacity they need to reliably serve their customers. The Board suggests the construction of new generation within the state as a way to lower costs and meet the capacity requirements within the state. The state's effort to provide alternatives to RPM with new generation may be too narrow and may overlook the opportunity to maintain resource adequacy at the lowest possible cost from a combination of new and existing resources, including generation, Demand Response and Energy Efficiency resources.

Since its inception in 2007, RPM made available 42,173 MW of incremental capacity into the recent 2014-15 auction to meet reliability obligations, including 5,565 MW in New Jersey. The capacity made available in New Jersey was a lower cost alternative to building the same amount of new generation within the state.

PJM appreciates New Jersey's desire to seek other alternatives and the Board may want to consider the Fixed Resource Requirement (FRR) that provides LSEs with an option to satisfy capacity obligations through self-supply outside the PJM market. In an order issued on June 13 granting New Jersey's rehearing request, the FERC directed that a technical conference be held to discuss this issue. PJM will continue its ongoing stakeholder discussions on this matter, as well as on the New Entry Price Adjustment (NEPA) provision, which is intended to provide additional revenue certainty for new entrants.



The Board also requested comments on whether there were hurdles to overcome to develop new generation in New Jersey.

An analysis of generating plants seeking to connect to the PJM grid must be completed pursuant to PJM's Regional Transmission Expansion Plan (RTEP) Planning Process to determine the impact of the new resource. There is considerable time and expense that goes into this examination because it must be assumed that every project that enters the interconnection queue is and remains viable.

Under Federal rules governing the PJM interconnection process, there is no provision for assessing the most likely projects. There may be greater efficiencies in this area on the wholesale level, but PJM also encourages New Jersey to consider whether any state policies influence whether non-viable projects remain in the queue.

PJM and the entire electric industry are assessing the impact of the new Environmental Protection Agency (EPA) clean air rules. PJM has conducted an analysis of physical characteristics of generating units to determine if they would meet the EPA requirements. The analysis concluded that of the 2,017 MW of coal-fired generation in New Jersey, 1,730 MW have made the retrofits or repowered to make the changes. This was done voluntarily to take advantage of the capacity revenue stream from the RPM market at a cost of less than the net Cost of New Entry for new generation.

Additionally, PJM is re-evaluating its RTEP process to determine whether changes should be made to support the eventual retirement of "at risk" generation and there are ongoing stakeholder discussions concerning the current federal "bright line" criteria that requires PJM to consider generation units as active throughout the 15-year planning horizon.

PJM supports the Board's conscientiousness in trying to ensure reliable, low cost electricity for its citizens. However, PJM cautions that careful consideration be given to how alternatives interplay with the



wholesale market rules and whether the alternatives are as cost efficient as may be obtained through the wholesale markets. Additionally, there may become beneficial changes that might be made in New Jersey policies as well, including those that may help improve the efficiency of the PJM interconnection queue. Working together, PJM and New Jersey can ensure we meet our common goals.

II. INTRODUCTION

In its May 27th Notice and May 27th Order in the above captioned docket, the Board indicated its interest in comments regarding generation capacity, including the results of the PJM RPM capacity market, impacts of proposed state and federal environmental rules, impediments to the development of new generation in New Jersey, and concerns regarding the delayed construction of the S-R line. PJM is an independent regional transmission organization (RTO) authorized by the Federal Energy Regulatory Commission (FERC) to administer an open access transmission tariff; operate wholesale energy, capacity, and ancillary service markets; plan the transmission system; and otherwise direct the day-to-day operations of the bulk power system across all or part of 13 states and the District of Columbia.¹

PJM submits the following comments to: (1) clarify the record with respect to reliability concerns related to the construction delay of the S-R line; (2) provide relevant facts related to the objectives and performance of RPM; (3) explain the applicability of the Minimum Offer Price Rule (MOPR) and highlight the compliance filing requirements stemming from the FERC's order on the RPM's MOPR – including New Entry Pricing rules intended to provide longer term revenue certainty for new generation construction; (4) provide an update on PJM stakeholder discussions to address challenges in the PJM interconnection

¹ See *Pa.-N.J.-Md. Interconnection, LLC.*, 81 FERC ¶ 61,257 (1997), *reh'g denied*, 92 FERC ¶ 61,282 (2000), *modified sub. Nom. Atl. City Elec. Co. v. FERC*, 295 F.3d 1 (2002).



queue process; and (5) provide an overview of a recent PJM analysis of the impacts of pending EPA rules on the existing generation fleet in New Jersey.

III. COMMENTS

A. Assuring Regional Transmission Adequacy

The Board raises concerns that reliability is severely compromised – to the point of imminent and frequent brownouts – in New Jersey as a result of the delay in the construction of the S-R line. The Board need not draw the extreme conclusion that brownouts absolutely will occur and will do so frequently. However, the Board has drawn the right conclusions that the risk of brownouts, while not imminent, is increasing and additional costs New Jersey will face in the form of transmission congestion and reliability must run (RMR) payments will result from the construction delay. PJM wishes to clarify the reliability record relating to the S-R line.

In 2007, PJM's RTEP process identified the need to construct S-R line by June 2012. PJM participated in lengthy hearings before the Board attesting to the forecasted reliability criteria violations the S-R line would address. The Board's order in this docket referenced various PJM's statements to that effect. Although the Board approved the S-R line for construction by June 2012, other necessary regulatory approvals are still outstanding, so construction has not yet commenced. In particular, the applicants have experienced a lengthy delay in the preparation by the National Park Service of an Environmental Impact Statement for the 4.18 mile portion of the line, along an existing right of way.

In the fall of 2010, upon learning the line would be delayed, PJM conducted an analysis of the baseline transmission system that would exist in 2012 without the S-R line in service to assess both the potential reliability concerns and potential transmission congestion that may result from a construction

delay. The reliability analysis indicated that for 2012 and 2013 there were five common mode outage violations, also called double-circuit tower line criteria violations.² Double-circuit violations are unique in that while they are assessed in the planning studies they are not normally contingencies that are monitored and controlled in real-time. Double-circuit contingencies are low probability, high impact events that look at potential catastrophic failure of a tower that contains two lines (or other potential events that cause both lines to trip) because of extreme weather or other low probability events. In the planning analysis these events are studied to assure they are “survivable” (*i.e.* all facilities are under their emergency ratings after the event happens). Because the events are low probability, they are not modeled in operations. PJM, working with the Transmission Owners, analyzed whether incremental upgrades could solve the identified potential future reliability criteria violations practically; no solutions were identified. PJM then evaluated operating to the contingencies in real time to determine whether there was enough generation to control the contingencies. PJM determined that requiring Hudson Unit No. 1 – which was already under an RMR contract – to remain in service would help to mitigate the forecasted reliability criteria violations that would persist with a delay in the construction of the S-R line. PSEG Energy Resources & Trade LLC (PSEG ER&T) subsequently filed with the FERC to extend the RMR agreement until September 1, 2012. PJM’s analysis also indicated that there would be an increase in the use of Demand Response (which are Capacity Resources committed in RPM) to control constraints.

PJM also studied the potential additional transmission congestion that may result from having to operate the system to protect against the double-circuit tower line contingencies from becoming actual violations in real time. PJM’s study of 2012 and 2013 showed approximately \$160 Million of additional

² *PJM Presentation to the PJM Transmission Expansion Advisory Committee*, at 7, Nov. 10, 2010 (TEAC Presentation). The reliability analysis in PJM’s TEAC presentation focused on 2012. PJM’s testimony in the S-R line proceeding spanned the 15-year planning horizon, noting criteria violations in future years as well.



congestion in 2012 and \$280 Million of additional congestion in 2013. All the above information was shared with the Board during various conference calls throughout the fall of 2010.

Operating to protect against these contingencies means that in real-time operations, PJM will dispatch available local supply resources (generation or Demand Response) out-of-economic merit order from the regional generation dispatch stack, to prevent cascading outages that could lead to a blackout if the double-circuit towers were to fail in real-time operations and not be available to deliver power into the local area. PJM would direct generators near the load center affected by the transmission constraints to run even though those generators would not be the next least-cost resources in the generation dispatch stack. The price difference between the local generation dispatched out-of-economic merit order and the lower price generation on the other side of the transmission constraint, is the cost of transmission congestion.

The Board's order in this docket indicates that PJM "has not formally advised the State of the contingency plans to address these very real pending reliability concerns, other than providing a commitment that the PSEG ER&T Hudson Unit No. 1 . . . will remain in service as a reliability-must-run (RMR) unit."³ However, as PJM indicated in materials presented to the PJM Transmission Expansion Advisory Committee (TEAC) and in conversations with Commissioners and Board Staff, contingency plans have been developed – such as developing plans to operate the double-circuit tower line outages in real-time operations – and will continue to be further refined as we get closer to real-time operating conditions. PJM will conduct a seasonal analysis to forecast expected conditions in 2012 as additional information becomes available, and PJM operators will continually evaluate operational requirements on a monthly, weekly, and daily basis leading up to the operating days in 2012. Although each of the alternatives is far

³ *In the Matter Of the Board's Investigation of Capacity Procurement and Transmission Planning*, at 4, State of New Jersey Board of Public Utilities Docket No. EO 11050309 (issued May 27, 2011).

less suitable and far more costly than completion of the line, PJM operators have available to them a range of options to address expected real-time system conditions. As described above, they can dispatch generators out of economic merit order (resulting in transmission congestion costs).⁴ If these solutions are not sufficient, PJM has the tools and authority to direct limited transmission switching, as well as a range of emergency operations procedures, prior to instituting brownouts. Emergency operations procedures may include calling emergency Demand Response, voltage reduction, and as a last resort, non-voluntary load shedding. As indicated in the presentation to the TEAC, PJM anticipates an increase in the calls on Demand Response resources, as well as additional out-of-merit dispatch of generation resulting in an increase in transmission congestion costs.⁵

Although voltage reduction and non-voluntary load shedding are “tools” in the operations “toolkit,” it is not expected at this time that those tools will need to be utilized. The Board’s order mischaracterizes PJM’s past statements as evidence of “the high likelihood of customer brownouts.” PJM’s prior statements regarding the S-R line siting proceeding and PJM’s analysis⁶ are that with out-of-merit dispatch and an increase in reliance on Demand Response resources that are enrolled in PJM’s Emergency Demand Response program will sufficiently control the constraints that are forecasted to exist due to the delay in constructing the S-R line. PJM has never stated that there is a “high-likelihood” of customer brownouts. Notwithstanding, as PJM’s prior statements indicated, PJM in executing its duty to ensure regional reliability, will develop operating procedures to manage the risk of reliability issues, and will define circumstances under which customer curtailment would need to occur in order to avoid broader service

⁴ Demand Response may on its own initiative respond to the price signals as well. This form of Demand Response is Economic Demand Response. This is different than Demand Response that implements upon PJM’s direction. The Demand Response that implements upon PJM’s direction is Emergency Demand Response.

⁵ TEAC Presentation at 9.

⁶ TEAC Presentation at 7 – 10.

disruptions. It is prudent to have such a plan; however, having a plan is not an indication that it will be implemented.

Additionally, the lower load forecast is expected to push a number of the forecasted reliability criteria violations further into the future, lessening concerns that PJM would need to resort to brownouts but not completely eliminate the reliability criteria violations. The S-R line continues to be needed. While the risk of having to resort to specific emergency procedures has increased as a result of the construction delay, PJM believes at this time the system will be within all applicable reliability standards. The S-R line will provide a broader range of options for ensuring reliable service to northern New Jersey and provide a significant margin to maintain reliability once it is in service. Retaining Hudson Unit No. 1 also is necessary to ensure continued reliable service.⁷ Moreover, caution must be taken as economic recovery may drive the load to come back faster than anticipated and there are limited options to ensure reliability that may be implemented in the short term. Incremental transmission upgrades⁸ will not solve the issues, and generation cannot be permitted and constructed fast enough – even the generators selected in the Long Term Capacity Agreement Pilot Program (LCAPP) proceeding are not anticipated to be on-line until 2015 or 2016.

B. Assuring Resource Adequacy

The Board has expressed concerns about the sufficiency of new generation development and the price of capacity in New Jersey, and expresses uncertainty about whether the RPM construct can encourage new generation construction in New Jersey. The focus on new generation construction alone to meet future resource adequacy needs is too narrow, and the effectiveness of the RPM Capacity Market

⁷ The RMR for Hudson Unit No. 1 has been extended through 2012. Consideration of further extensions would be given as PJM continuously assesses what may be required to operate the system reliably in the absence of the S-R line.

⁸ Incremental transmission upgrades would be lower voltage upgrades.



construct cannot be evaluated on new generation development alone, but must also consider the ability to maintain resource adequacy at the lowest possible cost from new and existing generation resources as well as Demand Response and Energy Efficiency resources.

PJM's RPM Capacity Market is designed to commit the least-cost set of capacity resources to ensure that FERC-established resource adequacy targets are met in the PJM footprint on a three-year forward basis. The least-cost set of resources can come from the retention of existing generation resources that may otherwise retire, capacity additions at existing generation resources, new-build generation resources, Demand Response resources, Energy Efficiency resources, and imports of generation resources.

PJM obtains financially binding commitments from capacity resources to meet the PJM region's reliability needs through annual RPM Base Residual Auctions (BRA) conducted three years before the year for which the capacity is needed (*i.e.*, the Delivery Year). The annual RPM BRAs therefore provide both certainty of supply to maintain resource adequacy three years into the future, and a forward, locational pricing signal and known revenue stream to support and incent necessary investments in capacity resources in areas where they are needed most. These investments take the form of new build generation, existing unit uprates, existing unit environmental retrofits that allow continued operation under increasingly stringent environmental rules, and Demand Response and Energy Efficiency investments that facilitate load reductions during system peaks.

The RPM Capacity Market has committed sufficient capacity resources in New Jersey, and the PJM region generally, to satisfy resource adequacy criteria, and has done so at a lower cost than through the construction of new generation resources alone. Additionally, resource requirements in New Jersey since 2007 have been met by a combination of resources including new generation development in natural



gas resources, uprates to nuclear generators, Demand Response resources, Energy Efficiency resources, and renewable energy resources such as methane (landfill gas) and solar facilities. The price difference experienced in RPM BRAs to date between PS North and EMAAC zones in New Jersey compared to MAAC and the western region of PJM are due to transmission constraints limiting the ability to import lower cost generation resources into New Jersey, and the resulting need to commit higher cost resources in New Jersey to meet the remaining resource adequacy needs of New Jersey. Although New Jersey's import capability is constrained, it provides a value to New Jersey load. The value of that import capability is captured in Capacity Transfer Right (CTR) credits, which reflect the ability to deliver lower cost capacity into New Jersey, and thus benefit load in New Jersey. In the first three completed delivery years wherein there were locational price differences under the RPM construct to date, New Jersey load received a yearly average of \$75.95 million (\$9.33/MW-day) in CTR credits. Moreover, in the recently completed 2010/2011 delivery year, there were no locational price differences across the RTO, and consequently New Jersey customers enjoyed full access to lower cost resources outside of New Jersey.

The construction of the S-R line should put downward pressure on capacity prices in New Jersey zones. Sensitivity scenarios PJM performed based on the 2013/2014 BRA results show the downward pressure that may occur. For example, the scenario assuming the S-R line being completed resulted in a price reduction in EMAAC from \$245/MW-day to \$229.86/MW-day, while also eliminating EMAAC as a binding Locational Deliverability Area (LDA) in the auction (meaning that the price for EMAAC was the same for MAAC). Another sensitivity scenario reinforced that observation. The scenario included the incremental addition of the Potomac-Appalachian Transmission Highline (PATH) line, which increases the transfer capability into MAAC. The result showed the price in EMAAC reducing from \$229.86/MW-day to \$135.59/MW-day.

However, as the Board recognizes, the environmental regulations that apply to the resources in New Jersey may affect future RPM clearing prices both due to generation retirements that may occur (reducing available supply) and the cost of retrofits (which will increase the cost of affected supply resources). Section III.E.2 below addresses the environmental regulation issues in greater detail.

1. Regional RPM Results

RPM has shown notable success in meeting its design objective across the PJM region and in New Jersey. RPM revenues in conjunction with expected revenue streams from PJM's energy and ancillary service markets are making it worthwhile for some generation resource owners, generation developers, and Demand Response providers to make investment decisions today to ensure resource adequacy requirements are met. Experience to date has shown that RPM has led to significant current and future investment across PJM's footprint in (1) new generation, Demand Response resources and Energy Efficiency resources, (2) upgrades to existing resources, and (3) retention of existing generation resources such as deferred generation retirements.

Since the implementation of RPM for the 2007/2008 Delivery Year, a minimum of **42,173 MW** of incremental capacity was made available or offered into the 2014/2015 Base Residual Auction across the PJM region as shown in **Table 1**. Of that, **9,189.5 MW** was made available in the **Eastern MAAC** region of PJM, which includes **5,564.9 MW** of additional capacity made available in New Jersey as shown in **Table 2**. This incremental, new capacity made available to PJM through RPM includes new generation capacity resources, capacity upgrades to existing capacity resources, new Demand Resources, upgrades to existing Demand Response resources, and new Energy Efficiency resources.



Table 1: Sources of New Capacity Resources made Available in RPM by LDA

Change in Capacity Availability	RTO**	MAAC*	EMAAC	SWMAAC
New Generation	7,477.4	3,023.1	2,142.5	485.0
Generation Upgrades (not including reactivations)	5,148.7	1,534.4	1,144.1	169.2
Generation Reactivation	538.7	378.7	197.7	181.0
Forward Demand and Energy Efficiency Resources	16,287.4	8,342.5	3,378.4	2,551.0
Cleared ICAP from Withdrawn or Canceled Retirements	3,715.0	3,414.5	2,326.8	997.6
Net increase in Capacity Imports	9,006.1	-	-	-
Total Impact on Capacity Availability in 2014/2015 Delivery Year	42,173.3	16,693.2	9,189.5	4,383.8

*MAAC includes EMAAC and SWMAAC

**RTO includes MAAC

Table 2: New Capacity Resources Made Available to New Jersey in RPM Since Inception

Change in Capacity Availability	New Jersey
New Generation	534.8
Generation Upgrades (not including reactivations)	666.2
Generation Reactivation	193.7
Forward Demand and Energy Efficiency Resources	1,947.4
Cleared ICAP from Withdrawn or Canceled Retirements	2,222.8
Total Impact on Capacity Availability in 2014/2015 Delivery Year	5,564.9

In the recently conducted 2014/2015 BRA, a total of **4,170 MW of year-over-year incremental**,⁹ **new capacity** was made available for the BRA across the PJM footprint. The increase in incremental, new capacity more than offset de-ratings to existing generation capacity resources, yielding a net increase of more than 2,620 MW of incremental, new capacity across the PJM footprint for Delivery Year 2014/2015.

As important as RPM is to attracting new generation, RPM also is incenting existing generation to remain on the system (canceling or deferring retirements) that, without RPM, would be revenue inadequate.

As shown in **Table 1**, New Jersey, as part of EMAAC, has received a benefit from the **2,327 MW** of

⁹Incremental new generation includes: generation resources that were not available prior to RPM; new generation resources; and uprates to existing generation resources.

capacity resources that would not be available absent RPM – with **2,222 MW** being located within New Jersey as shown in **Table 2**. This is a valuable reliability benefit of RPM.

It is important to note that such result – the **5,565 MW** incremental capacity made available in New Jersey – is a lower cost alternative to building **5,565 MW** of all new generation in New Jersey. The incremental benefit can be calculated by comparing the price of capacity prior to RPM to the average price of capacity resulting from the RPM BRAs held to date, divided by the **5,565 MW** of incremental capacity committed to New Jersey since the inception of RPM. To determine the capacity price before RPM, one can turn to the 2010 State of the Market Report published by the Independent Market Monitor. According to the 2010 State of the Market Report, in 2001 (prior to RPM), the average price of capacity in New Jersey was \$95.34/MW-day.¹⁰ The average capacity price in New Jersey over the last eight RPM BRAs is \$171.12 per MW-day. The increase in cost under RPM, therefore, is approximately \$75.78 per MW-day, which equates to an annual cost of approximately \$635 Million in New Jersey.¹¹ Dividing the \$635 Million of annual cost by the **5,565MW** of incremental benefit results in per MW cost of \$114,204 per MW-year. ***This per-MW cost is cheaper than the cost to build new generation resources in New Jersey*** as shown in **Table 3**. **Table 3** reproduces the 20-year levelized cost of gas and coal resources provided by the Independent Market Monitor (IMM) for PJM in the 2010 State of the Market Report.

¹⁰ 2010 PJM State of the Market Report, Volume 2, Figure 5-1 p.388. This table can be found at the following link: http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2010/2010-som-pjm-volume2.pdf The data for 2001 was selected for comparison as it was the most recent year, under the prior capacity construct, where capacity supply was lower than the capacity demand. The prior capacity construct, which the Federal Energy Regulatory Commission found to be unjust and unreasonable, would result in prices near zero when supply was slightly greater than demand, and at or near the capacity deficiency rate when supply was tight.

¹¹ The annual cost is equal to the difference between the \$171.12/MW-day cost to load under RPM and the \$95.34/MW-day cost of capacity under the previous capacity construct and then multiplied by the average UCAP obligation in New Jersey of 22,975.5 MW/day.

Table 3: 20 Year Annual Levelized Cost of New Generating Technologies¹²

Generating Technology	20 Year Levelized Cost
Gas-fired combustion turbine	\$131,044/MW
Gas-fired combined cycle	\$175,250/MW
Coal	\$465,455/MW

Thus, RPM capacity prices have provided an important price signal for facilitating the most cost-effective entry, investment and retirement decisions to help assure resource adequacy.

2. New Jersey Generation Development

In its May 27th Order the Board requested data as to the generation added in New Jersey since 2007. **Table 2** above provides the net incremental available capacity for New Jersey since the implementation of RPM. To be further responsive to the Board's request, provided below is data relative to the capacity that has been installed and operational since 2007.

Table 4: Installed Capacity by Fuel Type and In-Service Year

InServiceYear	Biomass	Coal	Diesel	Hydro	Methane	Natural Gas	Nuclear	Oil	Other	Solar	Storage	Wind	Grand Total
2007	22.4	132.0	8.0	16.0	79.6	147.0	298.0					346.8	1,049.8
2008	9.0	765.0		27.0	59.5	2,263.0	226.0	24.3	20.0	1.1	0.0	180.6	3,575.5
2009		40.0			19.6	476.1		25.6		21.7		94.5	677.5
2010		156.0		140.0	7.4	647.0	330.0			3.2		80.4	1,364.0
2011		27.0				18.0				0.5			45.5
Grand Total	31.4	1,120.0	8.0	183.0	166.1	3,551.1	854.0	49.9	20.0	26.5	0.0	702.3	6,712.3

¹² 2010 PJM State of the Market Report, Table 3-20at p. 176. This table can be found at the following link:
http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2010/2010-som-pjm-volume2.pdf



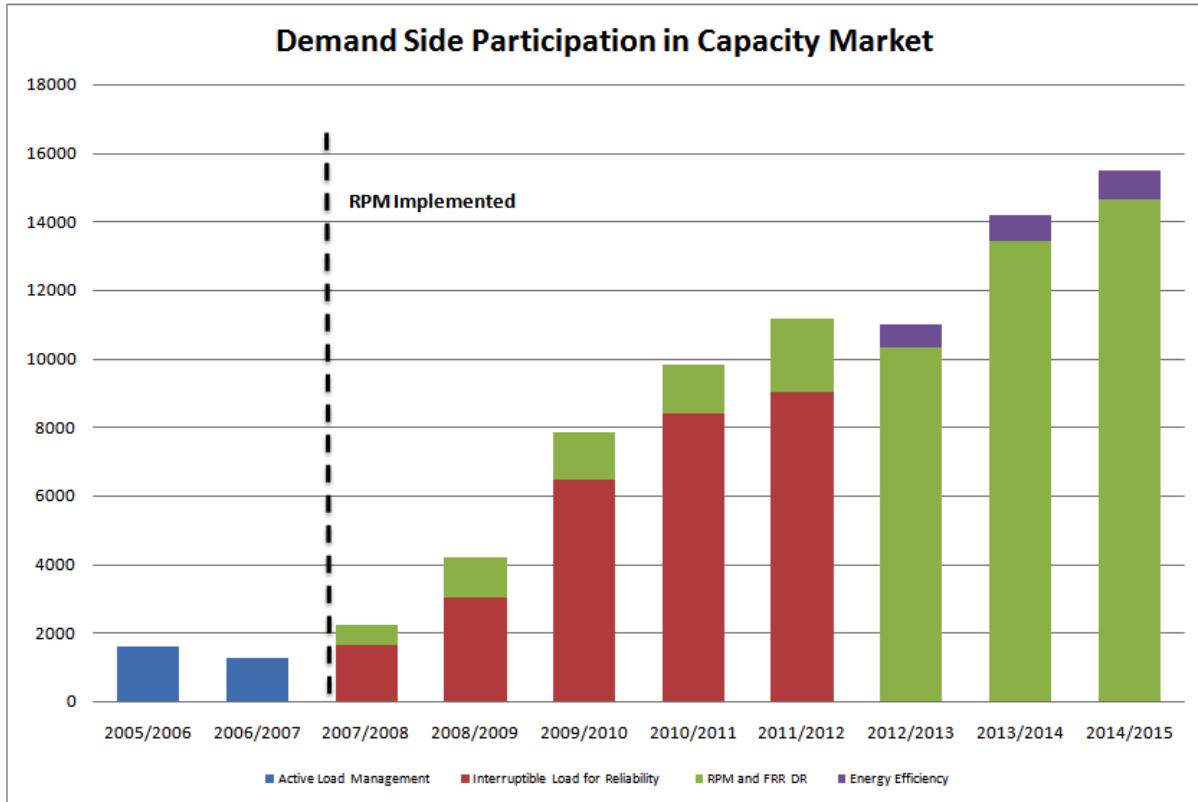
Table 5: Installed Capacity by Fuel Type by State (2007 - 2011 YTD)

State	Biomass	Coal	Diesel	Hydro	Methane	Natural Gas	Nuclear	Oil	Other	Solar	Storage	Wind	Grand Total
DE	0.0	23.0	0.0	0.0	9.0	38.0	0.0	26.2	0.0	0.0	0.0	0.0	96.2
IL	0.0	0.0	0.0	0.0	6.4	666.0	140.0	0.0	0.0	0.0	0.0	270.0	1,082.4
IN	0.0	10.0	0.0	0.0	0.0	19.0	0.0	0.0	0.0	0.0	0.0	220.0	249.0
MD	0.0	0.0	0.0	0.0	12.0	139.7	0.0	0.0	0.0	0.0	0.0	6.5	158.2
NJ	0.0	0.0	0.0	0.0	19.2	411.4	236.0	17.0	0.0	24.4	0.0	0.0	708.0
OH	0.0	195.0	0.0	0.0	16.4	13.0	0.0	0.0	0.0	1.0	0.0	0.0	225.4
PA	31.4	60.0	8.0	156.0	30.4	828.0	308.0	0.0	20.0	1.1	0.0	108.6	1,551.5
VA	0.0	66.0	0.0	27.0	66.3	1,436.0	170.0	6.7	0.0	0.0	0.0	0.0	1,772.0
WV	0.0	746.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.2	843.2
KY	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0
MI	0.0	0.0	0.0	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4
TOTAL	31.4	1,120.0	8.0	183.0	166.1	3,551.1	854.0	49.9	20.0	26.5	0.0	702.3	6,712.3

3. Region-Wide and New Jersey Demand Response and Energy Efficiency Growth

Of course, generation resources are not the only resources that provide reliability value to New Jersey. As noted above, New Jersey also benefits greatly from Demand Response and Energy Efficiency resources. The RPM BRA results demonstrate the growth of these resources contributing to the reliability of the system. The total quantity of Demand Response resources offered into the 2014/2015 BRA was 15,545 MW, which represents an increase of 2,592.9 MW (20%) over the Demand Response resources that were offered into the 2013/2014 BRA. Approximately, 91%, or **14,118.4 MW, of these Demand Response resources** cleared in the auction. An historic view of the increasing levels of Demand Response resources shows the significant growth in Demand Response across the PJM footprint since RPM implementation. (See **Figure 1.**) Similarly, the total quantity of Energy Efficiency resources offered into the 2014/2015 BRA increased 10% over the prior year's auction, for a total of 831.9 MW. Approximately 99%, or **822.1 MW, of the offered Energy Efficiency resources** cleared. An historic view of the increasing levels of Energy Efficiency resources also may be found in **Figure 1.** **Table 6** provides a breakout by Locational Deliverability Area and Zone of the cumulative offered and cleared Demand Response resources and Energy Efficiency resources in the 2014/2015 BRA .

Figure 1: Demand Response and Energy Efficiency as Capacity Resources¹³
[MW are reported in UCAP terms]



¹³ 2014/2015 PJM Base Residual Auction Report, p. 10; <http://www.pjm.com/markets-and-operations/rpm/~media/markets-ops/rpm/rpm-auction-info/20110513-2014-15-base-residual-auction-report.ashx>

Table 6: Demand Response and Energy Efficiency Resources by Locational Deliverability Area (LDA) and Zone¹⁴

Constrained LDA	Zone	Offered MW*			Cleared MW*		
		Demand	EE	Total	Demand	EE	Total
EMAAC	AECO	268.2	0.7	268.9	205.4	0.7	206.1
EMAAC	DPL	470.9	7.0	477.9	391.5	6.8	398.3
EMAAC	JCPL	553.0	2.2	555.2	444.0	2.0	446.0
EMAAC	PECO	992.4	8.4	1,000.8	830.5	6.6	837.1
EMAAC	PSEG	1,140.1	6.8	1,146.9	964.2	4.8	969.0
EMAAC	RECO	42.0	-	42.0	31.2	-	31.2
EMAAC Sub Total		3,466.6	25.1	3,491.7	2,866.8	20.9	2,887.7
MAAC	PEPCO	1,022.5	43.3	1,065.8	893.1	42.9	936.0
MAAC	BGE	1,450.9	119.3	1,570.2	1,341.3	118.4	1,459.7
MAAC	METED	469.9	4.2	474.1	398.4	4.1	402.5
MAAC	PENELEC	498.6	3.9	502.5	437.7	3.6	441.3
MAAC	PPL	1,505.3	11.8	1,517.1	1,299.5	9.7	1,309.2
MAAC Sub Total**		8,413.8	207.6	8,621.4	7,236.8	199.6	7,436.4
RTO	AEP	1,665.4	9.8	1,675.2	1,635.1	9.2	1,644.3
RTO	APS	912.0	5.9	917.9	886.8	5.5	892.3
RTO	ATSI	1,055.1	3.0	1,058.1	955.7	2.7	958.4
RTO	COMED	1,546.9	546.2	2,093.1	1,535.7	546.2	2,081.9
RTO	DAY	265.1	3.7	268.8	231.9	3.7	235.6
RTO	DEOK	60.4	-	60.4	54.6	-	54.6
RTO	DOM	1,381.3	52.6	1,433.9	1,359.5	52.1	1,411.6
RTO	DUQ	245.6	3.1	248.7	222.3	3.1	225.4
Grand Total		15,545.6	831.9	16,377.5	14,118.4	822.1	14,940.5
*All MW Values are in UCAP Terms							
**MAAC Subtotal includes all MAAC Zones							

Clearly, Demand Response and Energy Efficiency is becoming a viable resource for New Jersey. AECO, JCPL, PSEG and RECO are zones in New Jersey. For the 2014/2015 BRA, **2,003.3 MW of Demand Response** and **9.7 MW of Energy Efficiency** were offered from locations in New Jersey. The RPM capacity market provides incentives for these resources to develop. With the New Jersey's continued

¹⁴ *Id* at 9.



focus on increasing energy efficiency, and the acknowledgement in the 2011 Draft Energy Master Plan that “additional savings result from EE participation in RPM, the PJM capacity market,”¹⁵ PJM encourages New Jersey to continue seeking opportunities for the Energy Efficiency efforts in New Jersey to participate in the RPM auctions. PJM has offered information to Board staff and is willing to provide additional information about participation and benefits as the Board further considers its promotion of Energy Efficiency.

C. Applicability of the Minimum Offer Price Rule and Related FERC compliance requirements, including enhancing revenue certainty for New Entry

In its May 27th Order initiating this proceeding, the Board sought comments on whether to procure additional new generation resources under its LCAPP and other suggestions for how to ensure future resource reliability in New Jersey. To the extent that New Jersey load utilizes the RPM capacity auctions to commit the cheapest resource mix to satisfy longer-term resource adequacy, PJM urges the Board to consider how suggested alternatives interplay with the FERC approved RPM rules, including the Minimum Offer Price Rule. Additionally, PJM urges the Board to engage in the stakeholder discussions regarding the New Entry Pricing rules of RPM. The concerns New Jersey expressed regarding the need for longer-term revenue certainty for developers to finance projects spurred PJM to again commit to address the competing interests through the stakeholder process to address the inadequacy of the current New Entry Pricing Rule. Alternatively, New Jersey load could consider satisfying its long term resource adequacy requirements by using the Fixed Resource Requirement provisions in the RPM construct.

¹⁵ 2011 Draft Energy Master Plan at p. 106.



1. Minimum Offer Price Rule

On February 11 2011, PJM filed revisions to the MOPR.¹⁶ The FERC's April 12, 2011 Order largely approved the PJM filing making various changes to the MOPR.¹⁷ The MOPR sets a minimum price level for sell offers for capacity from certain types of new generation resources submitted in PJM's RPM capacity market auctions. Except with respect to the FERC-prescribed MOPR exception process, described below, a sell offer below that level will be re-priced to the prescribed minimum level unless the seller demonstrates to PJM that the specific estimated project costs and specific expected revenues underlying the offer are consistent with standards specified in the PJM Open Access Transmission Tariff (PJM Tariff or Tariff). If the RPM auction clearing price is less than a resource's offer, the resource likely will not be committed as a capacity resource because less expensive resources are available to satisfy regional reliability at a lower cost to consumers.

Specifically, the MOPR applies to sell offers in capacity-constrained portions of the PJM region for new capacity additions that are based on combustion turbine (CT) or combined-cycle (CC) power plants, and continues to apply to offers based on such a resource until it clears an RPM BRA or incremental auction.¹⁸ The PJM Tariff specifies class-specific estimates of the fixed capital and operating costs of such plants, and prescribes a method to estimate each year the expected revenues a typical CC or CT plant would receive from PJM's energy and ancillary service markets. The fixed-cost estimate will be revised each year based on a standard construction-cost index, and will be reviewed by PJM periodically. The revenue estimates vary by area within PJM based on differences in expected energy prices by area. The

¹⁶ *PJM Interconnection, L.L.C.*, Docket No. ER11-2875 (filed Feb. 11, 2011) ("February 11 MOPR Filing").

¹⁷ *PJM Interconnection, L.L.C., et al.*, 135 FERC ¶61,022 (2011) ("April 12 Order")

¹⁸ The base residual auction is the primary auction to commit capacity in RPM, held three years before the Delivery Year for which the capacity is committed. Three incremental auctions, held in the intervening three years before the Delivery Year, allow for adjustments in the committed capacity.



resulting estimate (*i.e.*, fixed cost estimate minus expected revenues) is reduced by ten percent to reflect estimating uncertainty. For PJM's most recent three-year forward capacity auction, held in May 2011 to commit capacity for the 2014/2015 RPM Delivery Year,¹⁹ the minimum offer price level for a CT in the area of PJM that includes New Jersey was \$247.52/MW-day, and for a CC in that area was \$184.86/MW-day.²⁰ Therefore, a new resource cannot simply offer a price below competitive levels in order to guarantee it clears. The resource must compete with other alternative resources in the auction which commits the lowest cost alternatives to satisfy regional resource adequacy requirements.

If a sell offer that is subject to the MOPR falls below these levels, the offer will nonetheless be permitted if the seller shows that its offer is consistent with the competitive, cost-based, fixed, nominal levelized, net cost of new entry were the resource to rely solely on revenues from PJM-administered markets. Under the FERC-prescribed MOPR exception process, a market participant submits its proposed offer (with full documentation) for review by the Independent Market Monitor for the PJM Region (IMM) with the opportunity to receive a determination from PJM if the IMM's findings are adverse to its interests. PJM has proposed to clarify, in a pending compliance filing at FERC,²¹ that exception requests will be submitted simultaneously to the IMM and PJM, to ensure that PJM can quickly review the exception request if needed, and that PJM, as administrator of its Tariff, reserves the right to review Tariff exceptions even if not requested by the seller. The pending compliance filing at FERC also provides guidance on the type of data and demonstrations a seller can submit to satisfy the MOPR exception standard. PJM's compliance filing has proposed flexibility in the application of the MOPR to recognize costs which may be legitimate based

¹⁹ A Delivery Year is a twelve-month period beginning on June 1 of a calendar year.

²⁰ Both figures are stated in terms of "unforced capacity," *i.e.*, installed capacity discounted by an expected forced-outage rate, which is the standard product committed in the RPM auction.

²¹ *PJM Interconnection, L.L.C.*, Compliance Filing, Docket No. ER11-2875 (filed May 12, 2011).

on the particular business model of the entity seeking the exemption as opposed to an overly rigid rule that may ensnare legitimate cost savings by virtue of an entity's tax exempt status or other related objective factors as opposed to costs or actions focused on affecting overall RPM prices.²²

On May 12, 2011, PJM requested that FERC clarify the April 12 Order by directing PJM to consider in the stakeholder process: 1) concerns about legitimate self-supply offers clearing in RPM; 2) a simplified alternative means of obtaining a MOPR exception; and 3) consideration of day-ahead prices in the energy revenue estimates used in MOPR; and to file any resulting Tariff changes with FERC **by October 1, 2011**.

2. New Entry Pricing

In its February 11 MOPR Filing with FERC, PJM acknowledged that greater certainty may be needed to encourage entry from new resources. As PJM stated in that filing, PJM continues to receive comments from new entry generation project developers, representatives of the investment community, and proponents of state support for new entry generation resources, that new entry generation requires greater revenue certainty from competitive wholesale markets than the market rules currently provide. The stakeholder process will allow parties to focus on whether reforms to new entry pricing are superior to other more costly out of market mechanisms. RPM's New Entry Price Adjustment (NEPA) currently provides a new entry project, in certain narrow circumstances, assurance that it will receive its "new entry" price, *i.e.*, the clearing price from the first year the new plant decides to enter a constrained LDA, for two additional years.²³ PJM sought to modify this provision in 2009, by easing some of the preconditions on availability of the NEPA and by extending the period of revenue assurances to five or seven years. The FERC concluded, however, that it could not accept those changes, finding that they would result in "price

²² On June 13, 2011, the FERC issued an Order granting rehearing for the purposes of further consideration and ordering a technical conference on self-supply issues. *PJM Interconnection, L.L.C., et al.*, 135 FERC ¶ 61,228 (2011).

²³ Tariff, Attachment DD, section 5.14(c).

discrimination between existing resources, including Demand Response, and new generation suppliers” and did not strike the right balance between facilitating project financing and minimizing uplift payments from loads.²⁴

PJM is committed to seeking solutions to address both the possible need for greater revenue assurance and the FERC's concerns with possible undue discrimination. PJM recognizes, however, that it may be difficult to achieve a stakeholder consensus on these points, given the controversy resulting from past efforts to reform the NEPA rules. To help advance a solution, PJM requested FERC to approve a compliance filing **deadline of October 1, 2011** for PJM to file, following a stakeholder process²⁵, any NEPA reforms that can satisfy the twin objectives of supporting new entry while avoiding undue discrimination between new and existing units. The FERC's April 12th order approved this request.

3. Fixed Resource Requirement

If the Board desires to pursue alternatives that would work best outside of the PJM RPM market construct, the Board may wish to consider the FRR Alternative and associated requirements for utilizing that option to satisfy capacity obligations, as described below. The FRR Alternative provides a means for an eligible LSE²⁶ to satisfy its obligation under the Reliability Assurance Agreement (RAA) to commit capacity to ensure reliable service to loads in the PJM Region.²⁷ However, the FRR Alternative includes

²⁴ *PJM Interconnection, L.L.C.*, 126 FERC ¶ 61,275, at P 149 (2009).

²⁵ PJM has scheduled the first Markets and Reliability Committee meeting focused on New Entry Pricing for June 28, 2011.

²⁶ Load Serving Entity is defined in Section 1.44 of the RAA as: “any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer, (i) serving end-users within the PJM Region, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Region. Load Serving Entity shall include any end-use customer that qualifies under state rules or a utility retail tariff to manage directly its own supply of electric power and energy and use of transmission and ancillary services.”

²⁷ RAA, Schedule 8.1, Section A.

significant commitment requirements including that all capacity obligations must be satisfied in the FRR plan for all load in area covered by the plan. It is quite possible that such an alternative would be a more costly for New Jersey than capacity procurement through the RPM auctions.

As an alternative to paying to purchase capacity through the Reliability Pricing Model, an LSE may elect to self supply its obligation by the process of Fixed Resource Requirement (FRR). This is described in the FERC approved, Reliability Assurance Agreement for use by PJM members in meeting their capacity obligation.

Any entity required to meet capacity obligations under the PJM Tariff may use either the FRR or RPM Alternative. Election of the FRR Alternative requires a commitment to remain an FRR Entity for a minimum of five years and, if changed thereafter, to remain an RPM Entity for at least five years.²⁸ To be eligible to select the FRR Alternative the entity must be a signatory to the RAA; classified as an investor-owned utility (IOU), Electric Cooperative, or Public Power Entity; and demonstrate the capability to satisfy the capacity obligation for all load in an FRR Service Area.²⁹

The FRR Entity's load obligation is similar to the load obligation of a member participating in the RPM auction. Rather than purchasing the required capacity at the auction clearing price through RPM, an FRR Entity must procure capacity and submit a FRR Capacity Plan to PJM. PJM will review and approve the Plan prior to the RPM auction. The Capacity Plan must describe all resources that will be used to satisfy the load obligation including existing and planned generation and demand side resources. The Plan must be submitted annually and updated with the status of each resource to be used.

²⁸ The FRR alternative has been used temporarily for interim periods when new entities have joined PJM.

²⁹ The FRR Service Area is, in relevant part, (a) the service territory of an IOU as recognized by state law, rule or order; (b) the service area of a Public Power Entity or Electric Cooperative as recognized by franchise or other state law, rule, or order; or (c) a separately identifiable geographic area that is: (i) bounded by wholesale metering . . . and (ii) for which the FRR Entity has or assumes the obligation to provide capacity for all load (including load growth) within such area.

The FRR Entity is responsible for the costs associated with ownership or other contractual costs for the supply and demand side resources. State rules may govern the allocation of FRR costs among competitive LSEs in the service area. Absent state rules, the RAA specifies compensation to the FRR Entity by other suppliers located in FRR Service Area at the RPM clearing price of unconstrained portions of PJM.

PJM monitors the capacity status in FRR areas as it does in the RPM areas and assesses deficiency charges to FRR Entities that do not meet their obligations in much the same manner as generators and demand side resources are charged for failure to perform as promised. The rates of such charges are derived from the RPM market prices.

D. Shortening Study Time and Enhancing Certainty for Project Developers in the PJM Interconnection Queue Process

The Board requests comments on whether there are impediments to the development of new generation in New Jersey. One factor that creates a measure of uncertainty and inefficiency are the current FERC-approved interconnection study process rules contained in the PJM Tariff. PJM devotes considerable effort and resources to its interconnection study process to treat all interconnection customers fairly and not result in undue delay. Nevertheless, PJM's FERC-approved interconnection rules, which conforms to FERC policy, may affect the pace of new entry and there may be opportunities for greater efficiencies in this area.

It was in response to the Board highlighting concerns relative to this process, particularly as it affected generation projects in northern New Jersey, that PJM committed in its February 11 MOPR Filing to initiate a stakeholder process to address potential changes in the process and to consider the balance of

financial risks between interconnecting customers and system load. PJM's goal is to identify and work toward filing any necessary Tariff changes by the end of 2011.³⁰

PJM studies the transmission grid impacts of generation (and transmission) interconnections. Consistent with FERC Order No. 2003, the interconnecting generator (or merchant transmission developer) is responsible to pay the cost of transmission facilities necessary to reliably interconnect the project to the PJM system. Transmission infrastructure in New Jersey is limited. While, historically, excess capacity has been built into the system, much of the transmission capability has been consumed by population growth and the addition of new resources. In instances where multiple projects desire to interconnect at the same electrical connection point or same general location, the existing infrastructure will not support the interconnection without potentially significant enhancements. The resulting cost of transmission enhancements to support such multiple interconnections (as unrealistic it may be to assume that all proposed projects will proceed) may be prohibitive for any individual project, yet no competing project (or at least not enough competing projects) drop out of the queue.

PJM must study all projects as though they are viable, even though the study results are less meaningful to the projects that are ready to move forward versus projects that are still tentative or conceptual. Simply, PJM does not have discretion to choose which projects in the queue it will study.

Moreover, when projects do decide to drop out of the queue, PJM must re-study all the remaining projects. This adds additional time in the process, delaying certainty as to what the interconnection cost

³⁰ PJM notes that discussion in the PJM Regional Planning Process Task Force (RPPTF) also may address a portion of the concerns relative to generation interconnection. One approach under discussion has been dubbed "critical mass." As the proposal has been described conceptually, after a predefined "critical mass" of generation indicates a commitment to develop, PJM would design a transmission solution to accommodate the interconnection plus extra capability to accommodate future generation that has not been identified yet. This may allow the most efficient transmission solution to be developed, resulting in the least cost to developers. However, under the proposal, until the line is fully subscribed, and there may be some potential that it will never be fully subscribed, the risk of investment not covered by interconnecting generators would be borne by load.



may be. There may be several reasons for why multiple projects wish to connect in the same geographic location, affecting the efficiency of the interconnection study process. While PJM intends to focus on the reasons that can be addressed at the wholesale level, PJM encourages New Jersey to consider whether any New Jersey policies influence non-viable projects to remain in the queue, resulting in efficient interconnection study results. If, for example, there are delays in the state environmental permitting process, projects are delayed in meeting milestones to proceed to the next PJM study level. Such projects remain in the queue until a determination is made with respect to permitting. Similarly, if New Jersey selects certain projects as part of renewable policy initiatives but does not clearly reject other projects, those other projects may remain in the queue with an unrealistic expectation of developing. An example is the offshore wind policies, particularly in instances where the state has the responsibility to grant land leases for the wind projects. Another possible example is when the state is deciding which projects will receive renewable credits, to the extent the state makes such determinations. PJM has not reviewed all New Jersey policies to offer specific guidance as to which projects may affect generation interconnection but rather raises it as a general point for consideration. Anything New Jersey can do to increase the certainty for projects that may be influenced by state policies will enhance the efficiency of the PJM interconnection study process.

PJM appreciates the attention the Board is placing on this issue and encourages the Board to actively participate in determining an appropriate solution for the PJM interconnection process, as well as to explore whether there are any modifications the state may make to processes that may unintentionally result in non-viable projects bogging down the interconnection queue.

E. Analysis of Potential Impact of Pending EPA rules

The Board's order initiating this proceeding discusses the tightening of environmental regulations impacting the generation fleet and requests comments on the potential impacts of the EPA regulations on the New Jersey power sector. Below PJM describes (1) the impact of the environmental rules reflected in the latest BRA results, (2) PJM's preliminary assessment of the number of resources affected by the EPA regulations, and (3) PJM's efforts to address "at-risk" generation resources in its long-term transmission planning process.

1. 2014/2015 BRA Results

The results from the May RPM BRA for the 2014/2015 Delivery Year demonstrate that the industry is reacting to increasing environmental requirements – either in response to or in anticipation of such requirements. Clearing prices in the western part of the PJM system increased; whereas, clearing prices in MAAC and EMAAC decreased.³¹ There is 2,769 MW less capacity committed (measured in terms of unforced capacity) in the 2014/2015 auction as compared to the 2013/2014 auction largely as a result of the reduced load forecast from the 2013/2014 BRA. Additionally, there was a 16% decrease, or almost 6,900 MW, in committed coal capacity. The decrease in committed coal resources is in large measure related to those resources reflecting the cost of environmental retrofits in their offers, making their offers uneconomic compared to lower cost resources such as Demand Response and Energy Efficiency.

³¹ 2014/2015 RPM results addendum at p. 1 and 4. The addendum may be found at the following link:
<http://wired.pjm.com/markets-and-operations/rpm/~media/markets-ops/rpm/rpm-auction-info/2014-2015-rpm-bra-results-report-addendum.ashx>

2. PJM Analysis of Generator Ability to Satisfy EPA Regulations

In response to a request by the Pennsylvania Public Utility Commission, PJM, preliminarily, conducted an analysis of physical characteristics of units in the PJM footprint to assess whether the units would meet the requirements of the EPA-proposed Clean Air Transport Rule (CATR) and National Emission Standards for Hazardous Pollutants (NESHAP) rules. PJM's analysis relies upon combining and verifying information from multiple, publicly available database on generating unit characteristics.³² The publicly available information from the 2009 EIA-411 filing was then matched with generating unit information from the EPA Clean Air Markets Division (CAMD) emissions data.³³ Gross heat rates and emissions rates were then computed from the EPA CAMD database information. Installation of emission control technologies and primary fuel use was verified by examining emissions rates in the CAMD database and through the EPA National Electric Energy Data System (NEEDS) database 4.10, the database EPA relied upon in the NESHAP rule.³⁴ With information from the three databases, PJM staff has been able to determine how many megawatts of coal-fired generation already have specific emissions controls installed that will work toward achieving the necessary emissions rates associated with CATR and NESHAP and to break these down by the age, size, and location of coal-fired units.

³² A database of units in PJM as of January 1, 2009, and as filed with the Energy Information Administration (EIA) for form EIA-411 can be found at <http://www.pjm.com/documents/reports/~media/documents/reports/2009-pjm-eia-411-data.ashx>. The Excel workbook contains information on generator location, capacity, age, fuel type, and in-service year among other pertinent information.

³³ <http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.output>. In the EPA CAMD data query system, unit level information from 2007 through the end of the first quarter 2011 can be obtained on sulfur dioxide, nitrogen oxide, and carbon dioxide emissions; boiler level heat input and gross load in MWh; primary and secondary fuels; combustion technology and configuration; maximum heat input per hour; and sulfur dioxide, nitrogen oxide, and particulate emissions control technologies.

³⁴ <http://www.epa.gov/airmarkets/progsregs/epa-ipm/toxics.html>. The NEEDS database contains unit level emissions control data that also extends to mercury controls and has emissions control in-service dates. The NEEDS database was used to cross-reference the data from the CAMD database to ensure accuracy.

PJM's analysis indicates that as of January 1, 2009, prior to the issuance of the CATR and NESHAP that targeted primarily coal-fired generation, there was 2,017 MW of net summer dependable coal-fired capacity in New Jersey. The proposed EPA rules would require existing coal resources to effectively meet emissions rates standards on a statewide basis for sulfur dioxide and nitrogen oxides under CATR,³⁵ and meet unit specific emissions rate standards for hazardous air pollutants such as mercury and acid gases under NESHAP. The method of meeting those emissions rate standards would require post-combustion emissions control retrofits such as: limestone FGDs that help achieve sulfur dioxide, acid gas, and mercury reductions; selective catalytic reduction for nitrogen oxide reductions and mercury reduction co-benefits when paired with a limestone FGD; activated carbon injection for mercury reductions; and a fabric filter baghouse for other non-mercury heavy metals and to capture activated carbon sorbent in the flue gas. Units could also retire or repower to burn natural gas to comply with the proposed rules.

Prior to 2010, only 595 MW of New Jersey coal-fired capacity had post-combustion sulfur dioxide controls and other controls that would allow the units to achieve the standards in the EPA-proposed CATR and NESHAP. During 2010, 23 MW³⁶ of coal-fired capacity switched to burning residual fuel oil and has just recently filed for deactivation during 2012,³⁷ 80 MW repowered to natural gas, and 1206 MW installed the necessary pollution control retrofits to achieve the emissions rate standards set forth on the EPA-

³⁵ CATR proposes a state-by-state emissions trading program where only resources within a state can trade allowances with one another. Because of the uncertainty regarding the liquidity of trading and availability of allowances, PJM staff makes the conservative assumption that generating units will try to achieve the implied emissions rate standard given by the cap on emissions at the state level without attempting to buy or sell allowances.

³⁶ This unit submitted a notice to deactivate with PJM on June 13, 2011. The list of deactivation requests may be found on the PJM website at the following link: <http://www.pjm.com/planning/generation-retirements/~media/planning/gen-retire/pending-deactivation-requests.ashx>.

³⁷ At or near the location of the 23 MW of retiring coal-fired capacity, there are 63 MW of natural gas generation currently under construction that will more than offset the unit retirement.

proposed CATR and NESHAP rules. Consequently, of the 2,017 MW of coal fired capacity, 1,730 MW have either repowered to natural gas or have installed all the needed emissions control retrofits necessary to go forward. Another 151 MW has sulfur dioxide controls that would require only incremental retrofits to go forward.

Of the recent repowerings and retrofits, these actions were not mandatory and the units owners could have chosen to simply retire the units. However, the stream of RPM revenues flowing to existing generation resources in EMAAC have allowed them to be retained as capacity resources, and at a cost that is less than the Net CONE for new generation in EMAAC.

Although the introduction of additional environmental regulations in combination with the forecasted market revenues may affect the financial viability of New Jersey generators, the market provides a valuable benchmark for other solution alternatives. As discussed above, the RPM auctions committed environmentally retrofitted capacity at a lower cost than the cost of new construction in New Jersey. Moreover, as noted above, the additional transmission into New Jersey, increasing the ability to deliver cheaper power, also will benefit New Jersey.

3. PJM's Efforts to Address "At-Risk" Generation Resources in its Long-Term Transmission Planning Process

PJM is re-evaluating its RTEP process to determine whether changes to the rules should be made to better anticipate transmission system needs to support the eventual retirement of "at risk" generation resources. Discussions have been on-going in the Regional Planning Process Task Force (RPPTF) to address challenges posed by the current bright-line criteria used in the process which requires PJM planners to assume generation not having formally provided PJM notice of deactivation will remain in service through the entire 15-year planning horizon. The RTEP process may need to better anticipate system impacts if multiple units decide to deactivate at the same time while also balancing the needs of



generator owners to retain flexibility in making business decisions about their assets. This would allow the transmission system to be robust enough to continue to deliver efficient resources from elsewhere in the system to ensure that the least cost generation mix supplies load. PJM is working toward the goal of developing any necessary Tariff changes and filing them with FERC by the end of 2011.

IV. CONCLUSION

PJM understands the Board is concerned about the wholesale locational price differential for energy and capacity in New Jersey and any reliability implications of the delay in constructing the S-R line and the introduction of increasingly more stringent environmental regulations at the federal and state level. PJM applauds the Board for continuing to consider actions it may take to further bolster reliability in New Jersey. PJM cautions that while changes in the wholesale rules may alleviate some of New Jersey's concerns, it is likely that beneficial change may be made in New Jersey policies as well. PJM similarly seeks to ensure reliability for New Jersey and the entire PJM region while also allowing the market to select the most economically efficient resources to satisfy the reliability requirements. As identified above, New Jersey may consider whether any of its policies have the effect of bogging the interconnection queue, unnecessarily hampering the progress of viable projects, as well as consider how to maximize the opportunity for its energy efficiency initiatives to receive value through RPM auctions. PJM encourages the Board to participate in the discussion of how to reform the generation interconnection process and other dimensions of transmission planning, and to enhance the New Entry Pricing Rules of the RPM capacity market. Working together, PJM and New Jersey can ensure that reliability is maintained in the most efficient manner.



PJM appreciates the opportunity to submit these comments and to participate in the Board's hearing on June 17, 2011.

Respectfully submitted,

A handwritten signature in blue ink that reads "Denise R Foster".

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PJM Interconnection, L.L.C.

Dated: June 17, 2011