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October 14, 2011

In the Matter of the
Board of Public Utilities'
Investigation of Capacity Procurement and
Transmission Planning
BPU Docket No. EO11050309

VIA ELECTRONIC & REGULAR MAIL

Kristi Izzo, Secretary
Board of Public Utilities
44 S. Clinton Avenue
Trenton, New Jersey 08625

Dear Ms. Izzo:

Enclosed for filing please find an original and ten copies of the Comments of Frank C. Graves on behalf of Public Service Electric and Gas Company, Jersey Central Power & Light Company, Atlantic City Electric Company and Rockland Electric Company (the "EDCs").

Should you have any questions, please contact the undersigned.

Very truly yours,

*Original Signed by
Tamara Linde, Esq.*

Attachments

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BPU DOCKET NO. EO11050309**

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STATE OF NEW JERSEY
BEFORE THE
BOARD OF PUBLIC UTILITIES

In the Matter of the Board's Investigation)
of Capacity Procurement)
and Transmission Planning)

Docket No. EO11050309

COMMENTS OF FRANK C. GRAVES

My name is Frank C. Graves. I am a Principal and co-leader of the utility practice area at the consulting firm *The Brattle Group*.¹ I am appearing on behalf of the New Jersey Electric Distribution Companies (EDCs), for whom I also appeared in the first public hearing on this subject in June of this year.

My report addresses recently proposed changes to PJM's transmission and capacity planning processes that could affect generation development in New Jersey and whether there is a basis for concerns over whether market power might be affecting resource planning decisions. I begin with a brief summary of my findings and opinions from the prior hearing.

The procurement results and cost/benefit analysis of the initial LCAPP should not be construed as demonstrating that the capacity it attracted will prove beneficial to New Jersey customers, nor that there is a need for additional such procurements.

It is beneficial and appropriate for the New Jersey BPU to explore mechanisms for lowering system costs and for improving the efficiency and reliability of market mechanisms serving NJ customers. The EDCs share this goal, and there are many possible mechanisms for pursuing it, including encouraging improvements in PJM markets, reducing barriers to local development such as siting and environmental permitting, and encouraging conservation and efficiency measures. The most effective way to obtain timely and reasonably priced new electricity supply for New Jersey will be to facilitate the growth of active, competitive markets. An LCAPP mechanism does not do this, because it induces supply to enter before the market would support the new asset, and it transfers risks to customers that market mechanisms would place on the developers.

¹ The views expressed herein are my own, and not necessarily those of *The Brattle Group*.

LCAPP works around and in some ways undermines the capacity market PJM has been developing. Of course, that is not the intention, but it is likely to be the effect. LCAPP may be being pursued for reasons that involve an inappropriate notion of market failure. The presumption seems to be that the lack of new CCs or CTs being built in New Jersey is proof that a problem exists, when that actually is an economically reasonable outcome of market mechanisms that are working adequately. Further, if the problem is defined as lack of in-state new generation, then only new in-state capacity can be the remedy -- hence creating a circular finding of need for LCAPP and its successors.

In fact, if the goal is to reduce future costs, then LCAPP or similar subsidies are not only unnecessary, they are likely to be counter-productive. In my 7/12/2011 comments, I explained that concerns over market failure and impending reliability problems were not plausible, nor were the calculations of estimated net benefits from the first LCAPP solicitation adequately vetted. As a result, LCAPP capacity could simply cost more than the PJM alternatives would have, and the prospects of further LCAPP procurement could impair future development of economic capacity in New Jersey:

- There is not a reliability issue. More capacity than is needed to satisfy the target requirements for New Jersey and EMAAC were offered and obtained in the BRA auctions.
- RPM capacity prices are currently below Net CONE and apparently below prices offered by LCAPP winners.
- The imputed capacity and energy value savings from initial LCAPP winners were not publicly reviewed or challenged. High estimates of net value are likely to be more indicative of forecast errors in the projected avoided costs, or mis-valuation of the shift in risk from developers to customers under the LCAPP price guarantees.
- Circumventing PJM's RPM established market mechanisms with LCAPP (rather than working to improve them) will discourage other new capacity development, because developers will fear that some future LCAPP-style procurement will subsidize their competitors and undermine the economic conditions needed to support their own plants. This means that future prices could be higher than they otherwise would have been, capacity development could be slower, and the "need" for LCAPP-type procurements would become self-fulfilling, ultimately undermining the market.

PJM is aware of, and is pursuing, several opportunities to improve its methods for planning of new generation and transmission, in order to improve the transparency, stability, and efficiency of its markets.

The list of motivating questions for this proceeding includes several issues where PJM and its stakeholders have noted that improvements would be desirable. These include the length of time and the cost uncertainty surrounding new generation interconnection requirements, the way transmission expansion projects are planned and incorporated into RPM, the quest for greater predictability, efficiency and (perhaps) less volatility in RPM prices, and potential clarifications and simplifications of rules, among other broad topics.

The Brattle Group has recently completed and published studies for PJM regarding the performance of the Reliability Pricing Model (RPM) and of the cost of new entry (CoNE).² These studies involved empirical analyses as well as interviews with numerous PJM stakeholders to learn of their experiences and concerns about PJM mechanisms. The *Brattle* study considered most of the issues raised by President Solomon, as well as several other topics. I have attached a table in the appendix to this report that gives a high level summary of some of the key areas considered and what kinds of enhancements have been proposed or are being pursued. Below, I touch on a few of the more salient ones regarding whether capacity is being developed appropriately in PJM generally and New Jersey more specifically.

Brattle's general finding was that the RPM process has been effective and beneficial, and that RPM results (in terms of prices and elicited supply) are broadly consistent with market forces -- though results have also been affected by changes in environmental regulations and PJM rules and methods of analysis. The amounts of both offered and cleared capacity have increased fairly steadily since RPM auctions began in 2007, even after adjusting for the growth in PJM's membership over that time. For the last several auctions, all of the LDAs have attracted more capacity than was needed to meet their target requirements, and all cleared at prices below net CoNE. More specifically, since RPM was implemented, 28,400 MW of Installed Capacity (ICAP) have been committed, which after retirements, derates and excused resources comes to 13,100 MW of net new capacity. Much of this is Demand Response, plant uprates or delayed retirements, and transmission lines, but it includes 4,800 MW of new generation. EMAAC has cleared about 4,098 MW of gross additions of a diversity of new resources since 2007, of which 1108 MW are new generation.³

Most of the capacity resources that RPM has brought forth are not new baseload capacity, and the LCAPP policy seems to view this as a problem for New Jersey.⁴ However, the starting presumption should be that this result is due to fundamental economics, not market failure. Baseload plants may not have been economical or necessary, while other sources of new capacity, all cheaper than a new plant, have been available (perhaps more so in EMAAC than in the rest of PJM). For instance, DR may be more feasible in EMAAC due to the density of customers and the presence of several large commercial and industrial loads. If so, bringing these lower cost resources forward has been a good result, not a problem.

Moreover, new baseload or mid-merit capacity is not always useful or necessary, and certainly it cannot be the only kind of generation that the market or New Jersey relies upon. Any power system requires a blend of generation with many characteristics, including

² Second Performance Assessment of PJM's Reliability Pricing Model, August 26, 2011, by Johannes Pfeifenberger and others at *The Brattle Group*, and Cost of New Entry Estimates for Combustion-Turbine and Combined-Cycle Plants in PJM, August 24, 2011, by Kathleen Spees and others at *Brattle*, in conjunction with CH2M Hill and Wood Group Power Operations.

³ Balance includes 151 MW reactivations, 1,079 MW uprates, 727 MW derates, and 2,487 MW DR. Excludes changes in net imports and EE additions.

⁴ Some new CCs are being developed in EMAAC: LS Power's 640 MW West Deptford CC in New Jersey (not selected in the LCAPP proceeding) is in an advanced permitting state, and CPV's 600 MW CC in Maryland has been permitted.

peakers and fast-response capacity resources. For several years leading up to the current recession, gas prices were high and volatile, resulting in gas combined-cycle (CC) capacity factors that were fairly low (42.2% nationwide average in 2009).⁵ CCs may become more attractive as we come out of the recession, especially if gas prices stay low, but there is much uncertainty about these circumstances. Generally, uncertain market conditions make capital-intensive projects risky and likely to be delayed, due to the value of preserving optionality to better size and time capacity expansion later. Risky conditions tend to favor reliance on technologies like combustion turbines (CTs) and demand-response (DR) capacity that can be developed more quickly and are more flexible to operate. Increased future reliance on weather-sensitive renewables will tend to strengthen the need for fast, flexible capacity.

The generation interconnection queue is not directly a part of the RPM process, but it affects both RPM parameters and the cost and risk facing generation developers. To make this process more timely and its results more stable, PJM has switched to evaluating needs and allocating upgrade costs to projects in clusters (rather than individually), and it has moved to a 3-month review cycle rather than a 6-month one, in order to attend to new projects sooner. PJM has also formed an Interconnection Process Senior Task Force which is currently evaluating options to enhance the queue cycle and tighten participation rules.

Notwithstanding concerns about the interconnection queue, its size has generally grown over the past five years, such that there are now over 44,000 MWs⁶ of new generation projects in the queue, with over 26,000 MW having passed the feasibility study and eligible to participate in RPM (including 7,300 MW in EMAAC, of which 1,900 MW are in PSEG).⁷ Of course, much of the capacity in the queue is never developed, but even a small portion coming to fruition can materially improve reliability.

It is important for the BPU to recognize that some of the past frustrations that may have motivated LCAPP are likely to be improved or ameliorated over the next few years, for reasons unrelated to LCAPP. For instance, coal plants' compliance with impending EPA regulations may reduce the capacity and energy price differences between New Jersey and western parts of PJM. This will also make power imported or produced locally from coal plants cleaner than in the past. New transmission projects currently being pursued will also tend to reduce eastern PJM price premiums (for both capacity and energy). New transmission lines may even reduce the future cost and complexity of local generation interconnection, making this aspect of power plant development a less substantial or risky factor

The way transmission expansion is planned has a bearing on RPM prices, as well as the energy value of new generation projects. For RPM purposes, this is manifest in PJM's estimate of the total MW capacity that can be reliably imported to a transmission-constrained LDA like EMAAC, referred to as CETL (for Capacity Emergency Transfer Limit). The

⁵ See EIA Electric Power Annual Report, April 2011 revision at www.eia.gov/cneaf/electricity/epa/epa_noticerev2.html.

⁶ Net summer capacity, with wind and solar derated to capacity value.

⁷ 2011 *Brattle* RPM Study, Page 47, Table 12.

recent *Brattle* RPM report acknowledges that this parameter can be a significant portion of the capacity requirements for a region, especially for smaller LDAs, and it also can be fairly variable – enough so to affect RPM prices.

CETL, in turn, is derived from PJM's Regional Transmission Expansion Plan (RTEP) studies, which move transmission projects back and forth in time according to whether the needed transmission capability is greater or smaller than the available capability -- a test that can be sensitive to changes in other LDA needs, such as revised load forecasts. To make CETL as well as RPM prices more stable, transparent and predictable, the 2011 *Brattle* RPM study makes several suggestions for how to improve these analyses. These include setting a deadband around the need vs. capability test; publicizing projected CETL for several years forward, and explaining its sensitivity to other LDA capacity decisions, so that developers can better assess their risk exposures.

Several other stakeholder concerns about RPM, CoNE, and capacity development were evaluated by *Brattle*, and suggestions were made for accommodating them. PJM has also received input on improvements directly from stakeholders. The appendix to this report summarizes some more of these proposals. The point of this synopsis is not to suggest that everything has been resolved and is no longer a concern. Rather, it is to show that the PJM processes are amenable to feedback and modifications that are being actively considered. There is no reason to believe that improvements will not occur, and there is no need in New Jersey to secure more capacity before such improvements can be developed and implemented.

It is also possible that non-RPM, non-PJM factors are influencing the pace and mix of capacity development in New Jersey. In particular, there could be costs and constraints related to siting or permitting that make new generation development more difficult in eastern PJM than elsewhere. If so, the BPU should focus some of its attention on diagnosing and curing those local constraints, rather than offering higher or more secure, longer term capacity payments to new plants (under LCAPP). LCAPP payments might be treating the symptoms, not the disease.

Suspensions of possible market power somehow affecting capacity development or regional prices have not been supported by necessary studies.

Perhaps reflecting a general skepticism about PJM markets, the issue of whether market power abuses might be responsible for some of the BPU's concerns was raised in a few of the questions motivating this proceeding. This however would take careful statistical work against well-understood baselines to establish if there is a cause for concern. Several analysis of this type are conducted for each RPM base and incremental auction by the independent market monitor (IMM); the IMM also conducts market power tests and enforces bidding rules prior to and during each auction, and the IMM reviews and if necessary, mitigates, energy and congestion prices.

I am not aware of any studies or opinions offered in this matter alleging that such behaviors or problems have been observed or even suspected in relation to the RPM market. Odd or complex price patterns are not a sufficient basis for such inferences, especially given the very

volatile risk conditions in this industry. Market reports, including PJM's Independent Market Monitor assessments and the 2011 *Brattle* RPM Study, do not identify any such concerns. Although the 2011 *Brattle's* recent RPM report did not test for specific market power behaviors, it found that capacity price fluctuations were consistent with market fundamentals.

Absent such findings from careful studies, I would suggest that it is more important and useful for the BPU to focus on understanding how fundamental economic factors are affecting New Jersey markets and capacity development, and on reviewing policies more fully within its control, such as state regulatory barriers to siting, permitting, or obtaining rights of way for transmission projects.

In fact, the possibility of ongoing and increased reliance on LCAPP-type procurements should itself be considered a barrier to entry of new capacity: Market developers contemplating entry in response to increasing local RPM and LMP prices may fear that New Jersey could undercut the expected economic attractiveness by soliciting new developers under different, less risky, non-RPM terms. The prospect that one or more of its competitors would a subsidized entry might even cause that first developer to simply wait for the chance to compete in future LCAPP-type procurements, rather than supply capacity through PJM. This would raise energy prices in the short run (while the developer defers entry) and transfer asset value risk to the New Jersey customers (since the LCAPP prices would be fixed, regardless of market conditions, while RPM would not be). Further, New Jersey customers would be partly subsidizing the capacity costs and needs of all of its neighbors in EMAAC due to the impact on overall regional reliability.

FRR would be an overly constraining choice as an alternative to RPM.

Serving some of New Jersey's load under Fixed Resource Requirements (FRR) would be a significantly restricted approach to providing capacity compared to the flexibility of competitive LSEs satisfying variable resource requirements via RPM. An FRR provider must cover all the capacity needs for all the customers in its service territory for a fixed interval (five years) regardless of whether those customers are taking their electricity supply from the FRR provider or not. Capacity already committed to RPM is not eligible to satisfy FRR needs. In essence, PJM wants to be sure that it can quit worrying about the reliability needs of those FRR customers, and that their supply adequacy situation cannot spill over to adversely affect PJM's other consumers who are using RPM for capacity.

Since a specific geographic demand territory must be served by the FRR provider in its entire capacity needs, this precludes treating a 1,700 MW layer of the entire New Jersey load as the FRR portion (and sharing the costs and benefits of the FRR capacity on a state-wide basis). In order to use New Jersey-sponsored or developed capacity for an FRR, either the entire state would have to become the FRR, or a single EDC could do so and use all of the New Jersey capacity (plus more) to satisfy its 5-year needs (but not that of other EDCs), or a geographic subset of customers could be carved off and isolated as the sole beneficiaries of the New Jersey capacity.

Once an FRR entity was in place, it would also become more complex to reassign capacity to serve suppliers who wanted to provide retail generation service in the FRR service territory. Such retail suppliers would have to become FRR providers themselves or obtain the needed capacity to support their customers from the FRR provider. The cost of the available FRR capacity that could be released to the retail supplier might not always be at market (then-current RPM prices), potentially creating tensions in competitive retail markets. Overall, FRR would be difficult to blend with New Jersey's retail competition.

Conclusions and Recommendations

- Several of the questions raised by the BPU about PJM's capacity market design and transmission planning processes point to valid concerns. However, PJM is already aware of these concerns from other stakeholder inputs, and it has several improvements under consideration.
- Even if all of the BPU's fears (about possible reliability problems in the future, and capacity or LMP price levels unreasonably higher than other regions of PJM) were valid, it is still not clear that LCAPP-type procurements would be desirable: If it is likely that PJM can and will make meaningful improvements, then New Jersey would be much better off simply waiting for the market to take care of its needs, at the developer's risk rather than via ratepayer subsidies. And if most of the BPU's fears are unfounded or describe conditions that prevailed in the past but are not likely to continue in the future, then there is a far worse risk of taking an expensive cure for a problem New Jersey does not even have. Moreover that process may infect future capacity development expectations and lead to a gradual regulatory usurpation of the market.
- Fortunately, New Jersey seems to have time on its side, with adequate capacity for the next few years at reasonable prices, as well as likely completion of large transmission projects that will give greater access to lower cost, western capacity and energy and will increase competition in eastern PJM. New Jersey can afford to adopt a "wait and see" attitude toward future non-RPM procurement processes, and in the meantime, it can help mitigate costs by focusing on improvements in areas where the state is directly involved in market access, such as siting and permitting.

This completes my report.



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	PJM Process	Activities and Suggested Improvements
Interconnection and Transmission	Generation Interconnection Queue	<ul style="list-style-type: none"> • PJM moved to a shorter review cycle and clustered studies to streamline the process. • PJM formed an Interconnection Process Senior Task Force to evaluate options to further enhance the queue cycle and tighten participation rules.
	LDA capacity import limits (CETL) and transmission planning (RTEP)	<ul style="list-style-type: none"> • PJM now models LDAs more pro-actively to identify potential price separation. • Recommendations for further improvements include: <ul style="list-style-type: none"> – Increase transparency of CETL calculations and results for market participants. – Adjust CETL modeling to better reflect RPM results and assumptions. – Introduce dead-bands and economic criteria into RTEP to help stabilize CETL.
RPM Parameters	Cost of New Entry (CONE)	<ul style="list-style-type: none"> • Recommendation to use level-nominal capital charge rate methodology.
	Energy and Ancillary Services offset (used to calculate net CONE)	<ul style="list-style-type: none"> • PJM is currently considering using day-ahead LMPs rather than real-time prices. • Recommendation to consider a forward-looking normalized estimate reflecting expected future capacity and locations that support CONE technology.
	RPM demand (VRR) curve definition	<ul style="list-style-type: none"> • Evaluation of the LDA reliability criteria is in-progress by PJM. • Recommendations for improvements include: <ul style="list-style-type: none"> – Re-evaluate current RTO-wide reliability criteria; examine tradeoffs between reliability targets and cost of new capacity. – Increase the cap of the demand curve; clarify net CONE cannot be less than zero.
	Minimum Offer Price Rule and Avoidable Project Investment Rate (pricing rules for new/existing resources)	<ul style="list-style-type: none"> • MOPR implemented to ensure self-supply is not used to manipulate clearing prices. • PJM is looking for ways to make the MOPR process less administratively burdensome, and considering modifications to better target resources of concern. • Stakeholders have suggested removing the allowed APIR adders or increasing transparency on them.
RPM Participation Rules	DR performance	<ul style="list-style-type: none"> • PJM has restricted quantity of certain DR products, and adjusted participation rules to be more consistent with generator rules. • Recommendations for improvements include: <ul style="list-style-type: none"> – Re-defining and further distinguishing resource types. – Enhancing tracking and testing of MW capacity values.
	Fixed Resource Requirement (FRR)	<ul style="list-style-type: none"> • PJM is currently exploring ways to make FRR viable for offering self-supply in RPM auctions.
	3-year timeline of RPM	<ul style="list-style-type: none"> • Recommendation to allow a voluntary longer-term capacity market.