Comment Submitted by the Scrubgrass and Northampton Generating Stations Regarding

PJM’s Capacity Performance Proposal

September 17, 2014

The Scrubgrass Generating Station and Northampton Generating Station (collectively “Generators”) are 83 and 110 MW Best Available Technology coal fired assets that participate in PJM’s wholesale energy and capacity markets. Generators are both amongst the most historically reliable resources in PJM’s fleet, with capacity factors near 95%.

Generators agree with PJM that a confluence of factors have created a reliability problem that must be addressed by PJM. As solid fuel resources exit the market due to tightening environmental standards and insufficient wholesale revenues, PJM is increasingly reliant upon gas-fired generation that lacks the fuel security provided by coal resources. Indeed, the Generators agree that PJM’s stated objective of developing a capacity market that values “[f]uel security through a dependable fuel source” will enhance reliability during scarcity events.¹ Solid fuel resources are able to stock-pile fuel to provide the type of “sustained, predictable operation” sought by PJM.²

However, the construct put forward should be amended. The risk proposed by PJM’s outsized penalty implications relative to the opaque opportunity for meaningful capacity market revenue return makes the Capacity Performance Resource (CPR) product unpalatable at best. PJM’s proposed outsized penalties for unavoidable forced outages are likely to drive resources with historically low forced outage rates from the market, thereby exacerbating PJM’s reliability concerns.

This reliability concern is heightened by the fact that the eligibility and flexibility requirements exclude whole classes from participation in CPR, regardless of their tolerance for risk. The Generators recommend that PJM refocus its efforts on improving the Reliability Pricing Model’s (RPM) revenue adequacy issues and move away from the constrictive regulatory framework it has proposed.

Indeed, the Independent Market Monitor (IMM) recently presented a series of analytic sensitivities that indicated the extent to which RPM currently underpays supply resources. IMM points to a series of market design flaws that have resulted in capacity market clearing prices being suppressed by between approximately $2.25 and $16.36 billion annually.³ IMM has posited that remedying this revenue shortfall would significantly improve reliability. Generators are concerned that current RPM revenues do not cover the fixed cost of these units. This is long term problem that may not be evident for several years, but should be addressed before more highly reliable units are forced to exit the market prematurely. The Generators therefore agree with IMM and suggest that PJM consider the reliability value associated with an explicit increase in capacity value.

While the Generators stress that they do not support the construct put forward by PJM, we recognize that PJM’s Board of Directors is very likely to unilaterally petition the Federal Energy Regulatory Commission (FERC) to adopt sweeping revisions to RPM. In an effort to ensure that PJM’s proposed

¹ PJM Capacity Performance Proposal at P. 4.
² Id. at P. 5.
construct is sufficient to support the long term viability of the PJM market, the Generators propose the following revisions to the CPR proposal.

1. **PJM's Proposed Flexibility Requirements Arbitrarily Exclude Certain Base Load Resources Based on Run Hours, a Metric Solely Out of the Resource's Control**

PJM states that the "ability for resources to be flexible throughout the operating day is integral to efficiently dispatching the system and minimizing uplift." pjM seeks to achieve resource flexibility by creating three separate classes of resources: 1) Base Load Asset Class; 2) Interday Cycling Class; and 3) Intraday Cycling Class. A Company Officer would be required to certify that resources qualify as one of the three asset classes.

PJM's base load asset class is currently limited to the following assets:

- Resources with more than 6,000 run hours;
- Start-up + notification time exceeds 12 hours;
- Minimum run time is less than or equal to 18 hours; and
- Minimum downtime exceeds 8 hours.

Of the three asset types, only the Base Load class meets CPR qualification in the number of run hours achieved by the resource. This provision is discriminatory and unnecessary and should be eliminated. PJM's run hour requirement severely curtails the number of coal units that can qualify as CPR based on a metric that is solely out of the resources' control. All capacity resources are currently obligated to offer into the Day Ahead energy market throughout the delivery year. As such, the revenue opportunity provided by RPM is explicitly tied to the requirement to deliver energy when needed. Likewise, the overall economic viability for these assets is directly linked to energy market rents. The Generators state explicitly that it already seeks to run in all economic hours and the restriction proposed by PJM is counter-productive.

However, the energy market clears on an economic basis, meaning that fuel costs are the primary factor in determining run hours. Indeed, the interaction between fuel costs and run hours is a pivotal element of PJM's energy market design. In its "Review of Generation Compensation and Cost Elements In the PJM Markets, PJM states that "[t]he objective of the PJM Energy markets is to minimize the bid production cost, as defined by the relevant market-based and cost-based supply offers.["] The energy market's natural and appropriate market-based bias towards the lowest cost marginal unit directly impacts the run hours achieved by a unit. "[A]s fuel prices rise and fall, the marginal cost of providing energy rises and falls, and therefore LMP will rise and fall along with fuel prices." Limiting base load assets to only those units that obtain 6,000 run hours naturally discriminates against coal resources that are run hour limited due to economics and not the physical ability to provide reliable service to PJM during a scarcity event.

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4 PJM Capacity Performance Proposal at P. 23.
5 Id. at 24.
6 http://www.pjm.com/-/media/committees-groups/committees/mrc/20100120/20100120-item-02-review-of-generation-costs-and-compensation.ashx
7 Id.
A more equitable and justifiable solution would be to eliminate the run hour requirement. Resources should be permitted to enter the market based on their perceived ability to perform as required relative to certain known risks and not pursuant to an unnecessarily restrictive standard.

Beyond eliminating PJM's inherent bias against this class of resources, the Generator's suggested change to eliminate the run hours requirement remedies two administrative concerns. First, it allows traditionally reliable resources to continue providing supply to PJM during scarcity events regardless of the market based interplay between fuel costs and energy prices. Secondly, resources could fall in and out of CPR eligibility due to energy market dynamics that have no bearing on the unit's ability to provide supply during scarcity events. This volatility puts both generators and reliability at risk.

RPM must articulate a clear price signal based on supply demand fundamentals. Retaining the 6,000 run-hour requirement creates significant variability in the number of resources that could qualify, thus injecting unnecessary volatility in the resource mix dynamics and subsequent RPM pricing. This will encourage historically reliable resources to unnaturally exit RPM, thereby increasing PJM reliability concerns. This provision should be eliminated from PJM's proposal.

In the event PJM feels that it must articulate certain flexibility requirements for generators, it should provide a mechanism whereby historically reliable resources can be exempt from the flexibility requirements.

II. PJM's Proposed Penalty Factor is Unreasonable Because It Places Supply Resources at the Near-Imminent Default Risk for Single, Unpreventable Forced Outage

While capacity revenues are a vital component of the overall economics for generation assets, selling energy into PJM's market remains the key revenue source for supply. Scarcity events are often coupled with the most profitable opportunity for generation resources. The opportunity to capture high energy revenues during times of system stress sends the correct incentive to resource owners to provide energy to the grid. Moreover, the energy market requires that resources purchase any undelivered capacity obligation at spot energy market prices. This inherent penalty naturally incentivizes resources to be available during scarcity events.

PJM's proposed penalty construct places a generator at near-imminent default risk in the event its resource is forced out during a scarcity event. PJM has articulated the penalty exposure for a 100 MW unit in the PSE&G territory that was forced out for all of January 7, 2014 at $1.79 million. This amount is capped at 2.5 times the total annual capacity revenues for the unit. However, this penalty does not include the balancing charges that would have been incurred by that unit during the same period. Based on an assessment of LMP prices in the PSE&G Zone, the same resource would have incurred balancing charges of up to $1.04 million. Therefore, the all-in penalty exposure for the unit, inclusive of balancing charges is $2.83 million or approximately 57 percent of the total annual capacity revenues paid to the asset ($4.98 Million). This total penalty us unduly burdensome.

The risk connected to PJM’s overstated penalty formula is exacerbated by elimination of Out of Management Control (OMC) outages. This includes force majeure events like Hurricane Sandy or a catastrophic failure of the regional fuel transportation system, such as a train derailment that halts coal deliveries to a unit. PJM’s proposed elimination of any force majeure provision further skews this construct. It is standard practice across the contracting spectrum to recognize that certain events occur outside of an entity’s control. PJM’s unreasonable elimination of the force majeure construct places resources at significant risk that is uninsurable and solely outside of their control. Consider the following, if the road leading to a coal plant was swallowed by a naturally occurring sinkhole meaning fuel could not be delivered to the asset, the unit could be subject to imminent bankruptcy risk due to the extreme penalty provisions proposed by PJM. The flaw in PJM’s logic is further demonstrated by the notion that the same unit would be forgiven from its penalty exposure if the local transmission substation was also swallowed by the same sinkhole.

PJM should reinstate the ability for resources to justify reasonable excuses for performance, including the longstanding and legally sound concept of "impossibility" via force majeure. Outright elimination of the construct does not advance reliability. Forced outages are an unavoidable occurrence which will happen even with increased maintenance budgets or CapEx. As a result, many resources will not accept the risk of the proposed penalty construct and exit the market. The result for PJM will be a less reliable system — the exact opposite of what PJM is trying to accomplish.
The Generators request that the following specific changes be implemented relative to the penalty provision:

A. PJM’s Penalty Provision Should be Capped at 100% of the Delta Between the Base Capacity and CPR Product Clearing Prices

PJM’s proposed construct is founded in the theory that “a more robust capacity product definition is required that provides enhanced performance incentives and provides more operational availability and diversity during peak conditions.” This additional product will supplement the existing Annual Capacity Product now termed “Base” Capacity. As currently proposed, existing resources would have the option to participate in the CPR product, but would retain the must offer obligation a Base capacity.10

This voluntary participation construct recognizes that participation in RPM as CPR is a function of a resource’s view of the penalty risk relative to the potential upside between CPR and Base clearing prices. Indeed, the entire revenue opportunity for CPR resources is tied to the notion that the product will separate relative to the Base resources clearing price. Therefore, the revenue opportunity is not the all-in value of the CPR clearing price, but rather the delta between the less risky Base product and CPR. The penalty provisions should be commensurate with the financial opportunity provided by the market.

This concept supports PJM’s goal of leveraging a market-based construct to “incentivize [resources] to maximize availability during all hours and contingencies and low probability events.” If the CPR market is undersupplied, prices will rise to reflect the premium associated with system needs. Because PJM intends to link product offers, and only clear an 85-to-15% Base/CPR ratio, Base prices should fall when CPR is scarce. However, when CPR is plentiful, Base and CPR prices should naturally converge, signaling to the market the system requires less of the overly risky product. When linked with the express penalty factor articulated above, resources that receive the price premium caused by CPR scarcity incur more risk relative to the Base product. Therefore, a penalty tied to the differential between the Base Capacity and CPR Clearing prices correctly aligns the risk exposure with the revenues available to the asset.

B. The Penalty Construct Should Include a Monthly and Annual Stop Loss Provision

The Generators believe reliability is critical, but PJM’s proposal will have an impact that is opposite to that which is intended: Rather than creating a more robust system where adequate generation has an additional incentive to increase its availability during scarcity events, the PJM proposal only increases the risk for non-delivery without providing a clear line-of-sight to a commensurate economic incentive. PJM’s proposal to overload generation owners with unmanageable risk will reduce incentives to participate in PJM’s CPR market, thus reducing reliability.

As evidenced above, the PJM construct has the potential to penalize a resource up to about 60% of the annual capacity revenues paid to the resource for a single event. This provision has the real potential to make the resource economically unviable for the remainder of the delivery year. This will negatively impact reliability by forcing supply from the Market. The Generators propose that PJM include a monthly stop-loss provision that is equivalent to 100% of the capacity revenues paid to the resource for a calendar month.

9 PJM Capacity Performance Proposal at P. 2.
10 See generally, PJM Capacity Performance Proposal at P. 30.
11 Problem Statement on PJM Capacity Performance Definition at P. 12.
III. PJM’s Wholesale Markets Must Allow Solid Fuel Resources to Recover the Cost Associated with Stockpiling Fuel on a Quarterly Basis

PJM proposes that "eligible resources for Capacity Performance will be generators capable of sustained, predictable operation for 16 hours per day for three consecutive days."\textsuperscript{12} Unlike gas-fired assets, solid fuel generators have the ability to stockpile coal to ensure sustained supply over the course of the eligibility periods proscribed by PJM. However, these resources are subject to transport economics that are exclusively out of their control. Freight entities have the ability to determine what type of cargo they transport at a given time. Commodity and freight line economics and not system reliability needs dictate the delivery schedule for solid fuel resources. It is entirely possible that transport entities could halt coal supply with little recourse for the supply entity, leaving the generator subject to severe penalties.

However, the supply resources could mitigate this risk by stockpiling additional supply as a hedge against the PJM penalties by ensuring fuel is available to accommodate the run. This leaves the resource exposed to significant risk that it over-procured its fuel supply relative to the energy revenue opportunity. PJM should include a mechanism that allows the resource to recover these costs within ninety days of incurrence and no more than quarterly.

IV. PJM Should Retain the Unforced Capacity (UCAP) Measurement for Both Payment and Penalty Assessment in All Aspects of RPM

PJM intends to require a company officer to certify that "Capacity Performance Resources" are able to "operate at their Capacity Performance Installed Capacity (ICAP) value for at least 16 hours per day for three consecutive days throughout the delivery year."\textsuperscript{13} Despite the fact that the Generator's Facilities have been reliable resources to PJM and consistently meet their UCAP obligations, it could not certify to this provision and thus could not provide CPR capability to PJM. The proposal should therefore be amended to remove the ICAP based commitment and should instead retain the current UCAP commitment.

As PJM is well aware, capacity is the ability to produce energy when called by PJM. Capacity markets should be designed to incentivize resources to be available to serve reliability by naturally biasing revenues to favor the best performing resources. Currently, the UCAP measure accomplishes this by deducting the forced outage rate from the physical installed capacity (ICAP) value for a resource. Indeed, as the Market Monitor correctly states in its report on RPM fundamentals, reducing net capacity payments to generators that underperform provides “a direct incentive to have low forced outage rates.”\textsuperscript{14}

Despite its strong operating history, the Generators cannot certify that they are able to "operate at their Capacity Performance Installed Capacity (ICAP) value for at least 16 hours per day for three consecutive days throughout the delivery year.” Forced outages are a natural function of operating a generating unit. In certain cases, no additional amount of operations and maintenance expenditures would improve the unit’s performance to eliminate the possibility of forced outages.

\textsuperscript{12} PJM Capacity Performance Proposal at P. 5.
\textsuperscript{13} PJM Capacity Performance Proposal at P.8.
\textsuperscript{14} Id. at 11.
Requiring resources to offer at their ICAP value is unjust and unreasonable because it is likely to exacerbate PJM’s concerns with both reliability and the over-reliance on uplift. If a resource failed to meet its ICAP value due to fuel composition, PJM would be forced to rely on output from other units out of merit order to fill the void. The end result would be an overestimate of the fleet capability coupled with the need to run resources outside of economic merit order. Ultimately load would be harmed by this change.

Retaining the UCAP measure for both payment and penalty allocation preserves it as both a performance incentive and risk management tool necessary to allow the Generators to reliably perform as a CPR resource when called by PJM. PJM would be provided with the reliability assurance that the necessary capacity would be available during all hours when needed by PJM by accurately accounting for the likely operational ability of its resources. Therefore, PJM should retain the UCAP performance obligation in the CPR construct.

V. The Generators Support PJM’s Treatment of Demand Response in CPR, Provided Parity Between Risk/Reward Dynamics are Identical for All Resource Types

PJM proposes that “Demand Responses (DR) that are able to achieve load reductions to their ICAP value, for at least 16 hours per day for three consecutive days when called upon by PJM and must be available 24 hours per day for each day of the Delivery Year.”15 PJM further states Demand Resources that qualify as the Capacity Performance Product are being treated identically to Generation Capacity Resources that qualify.”16

The Generators support this provision. RPM’s regulatory structure has been an unlevel playing field that favors DR resources. As the IMM correctly states, Limited and Extended Summer DR resources are principle drivers of price suppression in the PJM capacity market. The Generators suggest that PJM take the opportunity to remedy this flaw and ensure that all resources are held to the same performance standards and risk exposure. PJM should ensure that the revamped RPM construct achieves parity between all capacity market participants.

VI. Conclusion

15 PJM Capacity Performance Proposal at P. 9.
16 Id.
The Generators appreciate the opportunity to comment and suggest that the market reforms discussed herein would significantly enhance reliability throughout the delivery year by leveraging PJM’s existing market design while removing the disruptive and unnecessarily risky elements of its current proposal.

Respectfully submitted,

Peter Rigney
Project General Manager, Northampton and Scrubgrass Generating Stations

Shawn Saint
Owners Representative – Northampton and Scrubgrass Generating Stations

Michael Borgatti
Director – RTO Services, Gabel Associates, Inc.