Following the winter weather events in 2014, PJM has raised concerns regarding the reliability of its fleet. PJM has stated publicly that it feels that it cannot remain reliable given the paucity of firm fueled resources. Rockland Capital, LLC, Moxie Energy, LLC, Essential Power, LLC, Dynegy Marketing & Trade, LLC, and Invenergy, LLC (collectively the “Coalition”) recognize PJM’s concerns and supports its efforts to further ensure reliability in the winter and summer months. However, the construct proposed by PJM staff is unworkable. It does not address different types of gas delivery issues that can arise during extreme events, and the financial risk posed by PJM’s proposal is unjust and unreasonable. In addition, PJM has not demonstrated that certain aspects of its proposal will lead to improved reliability and has not shown that these measures, even if effective, would justify the dramatic increase in cost to load and risk to supply resources.

PJM should refocus its efforts on operational and market design improvements that will better allow supply to respond during times of system stress. Discussed below are specific reforms that PJM should adopt in lieu of the proposed market redesign. The Coalition suggests that PJM redouble efforts to communicate directly with pipeline operators to ensure that the fuel requirements imposed by PJM exist on all the pipelines and are obtainable by supply resources. Additionally, the Coalition recommends that any construct proposed by PJM must at a minimum contain the elements listed below. Importantly, PJM must not conclude that gas only units are simply less reliable overall than other supply resources and, therefore, cannot be part of the solution. Based on commodity trends and environmental restrictions, gas only assets will continue to be one of the most important resources for the PJM fleet. PJM should examine how changes to its operations and rules could improve reliability of its natural gas fleet.

I. PJM Must Redesign its Electric Market Structure and Timing to Permit Resources to Timely Nominate Gas Supply and Recover All Incurred Costs

The Coalition believes that PJM is taking an overly simplified view of natural gas markets. In reality, the ability to flow fuel to specific plants is dictated by the individual tariffs associated with each pipeline. Further, PJM’s notion that the implementation of the Capacity Performance Resource (“CPR”) product will automatically spark the market’s willingness and ability to create more firm gas products is misguided. The Coalition suggests that the inability of gas-fired units to certify that fuel is available in the manner set forth by PJM is likely to severely limit the amount of resources that are capable of providing CPR supply. Increasing the reliability of PJM’s gas fleet begins by ensuring that resources can nominate and schedule fuel supply after Day Ahead (“DA”) awards are known and prior to the timely nomination deadline established within the tariffs of the natural gas pipelines.

The regional electric and natural gas days are not synchronized. PJM’s electric day runs from midnight to midnight, whereas the national gas day runs from 10:00 AM ET to 10:00 AM ET. Transaction volume, or
liquidity, in the gas market reduces significantly after the Timely Nomination cycle deadline at 12:30 PM ET on the business day prior to delivery, but DA awards are not posted until 4:00 PM ET on the calendar day prior to delivery. This disconnect creates substantial challenges for gas-fired generators seeking to procure fuel and schedule its delivery on a firm basis to accommodate PJM’s dispatch instructions. Further, extreme weather events often coincide with extreme price volatility in commodity markets which makes these challenges even greater. Generators are forced to speculate on fuel availability and price relative to the probability of their DA energy market offers clearing the market. PJM must synch its energy market to the timely natural gas nomination period to allow resources to procure fuel to accommodate the needed reliability run.

Moving the 4:00 PM ET deadline for announcing the results of the DA market to 12:00 PM ET is only a small part of the solution. Doing so alone would require offers to be submitted by 8:00 AM ET. At 8:00 AM ET there is limited liquidity in trading of natural gas in DA markets so there is no transparency into the price of gas to be included in DA offers. The market must allow gas markets to establish prices and afford resources the necessary opportunity to engage in price discovery of fuel costs prior to submitting a DA energy offer.

PJM can remedy this flaw by reducing the time from which offers are submitted to when the results of the DA market are published. To this end, PJM should strive to clear the market in no more than one hour. Market offers provided at 11:00 AM ET would have sufficient price transparency, and awards made by 12:00 PM ET would allow generators to timely nominate fuel. This substantially increases the value of firm fuel supply and transport contracts and the likelihood that fuel can be delivered to the resource. Secondly, it would limit the opportunity for the fuel price to run up during the four-hour DA market clearing window. This reform should reduce the risk to supply that prices change dramatically during scarcity events, which should manifest itself in better energy price formation for load.

PJM’s current energy market offer construct does not allow resources to include an accurate representation of the total cost to deliver energy. This problem is exacerbated during times of extreme fuel price volatility or natural gas system stress. When coupled with the disconnect in the timing of the energy day relative to the gas day, generators face significant risk that the cost of fuel is not commensurate with energy rents. Pricing is further impacted when units switch between primary and secondary fuels. PJM must incorporate the concepts gained in the Gas Unit Commitment Coordination stakeholder discussion into its market reforms.

Generators also face availability issues associated with non-transport and non-commodity related costs. Many times during system stress, natural gas pipelines impose surcharges or penalties on generators seeking to procure fuel to accommodate PJM’s dispatch instructions. These fees are real costs incurred by the generators. These costs are often levied by pipelines when the generator is responding to conservative operations or reliability run commitments provided by PJM. The unit then seeks to transport fuel outside of designated nominations periods, thus triggering the penalty. PJM must allow generators to include these costs within energy market offers and therefore LMP.

II. PJM Should Amend its Dispatch Paradigm to Reflect the Limitations on Gas-Fired Supply Posed by Gas Pipelines during Reliability Events

PJM’s proposed construct fails to recognize that it is vital to both reliability and human safety that the natural gas system remains viable during times of system stress. In a manner akin to PJM’s control of
resource behavior relative to concerns over the safe operation of the transmission grid, pipelines have valid and justifiable reasons to dramatically curtail resource owners’ ability to procure and transport fuel in the name of reliability. The most common instances of pipeline-imposed reliability conditions are termed Operational Flow Orders (“OFOs”) and Critical Days. During these times, pipelines can severely curtail the operating parameters for supply resources. All OFO and Critical Days are not identical. They vary pursuant to the specific needs of the pipelines relative to the identified reliability concern. Examples of the type of restrictions that can be imposed by pipelines include, but are not limited to, strict limits on ratable takes, designating specific nomination points, or limits on the windows during which resources can nominate fuel or paths down which fuel can flow. While the actual restriction may differ, OFO and Critical Days are uniform in the fact that they define the physical operating parameters of the resource.

PJM needs to become more aware of the constraints that natural gas pipelines are imposing on generators during scarcity events such as OFO conditions. There is often little benefit to firm transport or supply contracts during these instances. However, it is short-sighted to jump to the conclusion that this means gas only assets are not as reliable.

In many cases a gas asset could be available even during extreme events if PJM adjusted its operations to account for delivery restrictions. The Coalition proposes a construct whereby pipeline-imposed reliability conditions function like physical constraints that impact both the availability and cost of gas-fired generation resources at PJM’s disposal. Not recognizing the delivery constraints of the pipeline system as physical restrictions holds gas generators to a higher standard and is unfair. For example, there is no reason to consider the extra notice required by a solid fuel generator to bring its units online as a more legitimate restriction than the extra notice a gas unit might require to schedule gas during an OFO.

Resource owners should be required to notify PJM that the pipeline has issued an OFO/Critical time scenario and include the specific restrictions governing their access to fuel. It would be incumbent upon the generation asset to procure fuel pursuant to the physical restrictions imposed by the pipeline if dispatched during a timely nomination period by PJM. Failure to procure fuel to accommodate the run requested by PJM would result in penalties being imposed on the resource. Costs to support delivery of energy would be recoverable through the energy market. PJM would then dispatch the resource pursuant to this new “gas constraint,” thereby allowing the unit to set the price, while holding additional reserves to accommodate real time changes in supply/demand fundamentals. A construct such as this would leverage the energy market to provide PJM with a more granular view of the operational viability of its assets in real time, which should reduce the need to pay uplift, and better preserve reliability. It also reflects PJM’s recognition that the electric transmission system can physically alter a generator’s ability to provide supply. Gas assets will be more available during extreme events if these constraints are properly recognized. In many cases, such constraints still provide for the units to operate with more flexibility than other types of units which are always required to operate under less flexible parameters.

On January 7, 2014, about 9,300 MWs of natural gas-fired units were forced out for lack of fuel. However, about 8,600 MW of this total did not receive a DA award. It is likely a large portion of these assets had no way to schedule at such late notice regardless of firm supply or transport contracts. As the gas market evolves to accommodate gas generation development, PJM could revisit the need to retain this constraint in the energy market.

PJM may not be able to dispatch the grid in as cost efficient a manner when it is not able to take full advantage of the flexibility gas plants typically offer the market. The costs involved in this less efficient dispatch would still be minimal in comparison to those that would result from PJM’s current proposal for units to become Capacity Performance Resources. Moreover, the measures suggested by PJM do little, if
anything, to address the conditions that can arise on pipeline systems during the extreme weather events that cause the pipeline to protect its reliability.

Indeed, PJM has suggested that the change in gas supply fundamentals was a principal factor in the uplift dollars paid by load. This construct would limit load’s exposure to this unhedgable risk and allow PJM to use these units to maintain reliability during times of gas/electric stress. By incorporating pipeline limitations as operational constraints in addition to adjusting the market clearing deadlines to accommodate timely nomination cycles, PJM will arrive at a grid construct that combines its reliability goals with the reality of the ongoing transition of the market being more reliant on gas-fired supply.

III. PJM’s Penalty Construct Places Generation Owners at Untenable Risk

The Coalition suggests that PJM has lost sight of the notion that generation entities profit from the sale of energy. While capacity revenues are a vital component of the overall economics for generation assets, suppliers do not invest with the intent to avoid selling energy into PJM’s market. Scarcity events are often coupled with the most profitable opportunity for supply resources. The opportunity to capture high energy rents during times of system stress sends the correct incentive to resource owners to provide energy to the grid. Conversely, PJM’s proposed penalty construct inappropriately skews this balance far beyond an appropriate level of risk.

PJM’s proposed penalty construct potentially 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 $2.89 million or approximately 57 percent of the total annual capacity revenues paid to the asset ($4.98 Million).\(^1\) This total penalty alone places the resource in financial jeopardy.

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Hour DA RT Delta DA Payment RT Settlement Penalty Total Payment (Cost)
100 $273 $320 -$47 $27,251 ($31,968) ($31,968) $27,251
200 $227 $415 -$188 $22,671 ($41,499) ($41,499) $22,671
300 $249 $419 -$170 $24,882 ($41,853) ($41,853) $24,882
400 $234 $272 -$38 $23,395 ($27,165) ($27,165) $23,395
500 $261 $454 -$193 $26,133 ($45,441) ($45,441) $26,133
600 $306 $467 -$161 $30,556 ($46,666) ($46,666) $30,556
700 $349 $1,013 -$664 $34,914 ($101,316) ($101,316) $34,914
800 $544 $1,671 -$1,127 $54,414 ($167,112) ($167,112) $54,414
900 $385 $1,802 -$1,416 $38,547 ($180,180) ($180,180) $38,547
1000 $359 $1,781 -$1,422 $35,931 ($178,137) ($178,137) $35,931
1100 $333 $1,796 -$1,463 $33,315 ($179,646) ($179,646) $33,315
1200 $264 $1,463 -$1,199 $26,365 ($146,301) ($146,301) $26,365
1300 $249 $471 -$222 $24,933 ($47,141) ($47,141) $24,933
1400 $249 $541 -$292 $24,906 ($54,061) ($54,061) $24,906
1500 $247 $424 -$177 $24,681 ($42,362) ($42,362) $24,681
1600 $237 $316 -$79 $23,738 ($31,646) ($31,646) $23,738
1700 $283 $344 -$61 $28,292 ($34,440) ($34,440) $28,292
1800 $385 $1,182 -$797 $38,498 ($118,182) ($118,182) $38,498
1900 $593 $593 $0 $59,341 ($59,339) ($59,339) $59,341
2100 $327 $553 -$226 $32,725 ($55,310) ($55,310) $32,725
2200 $267 $405 -$138 $26,707 ($40,475) ($40,475) $26,707
2300 $303 $296 $7 $30,309 ($29,599) ($29,599) $30,309
2400 $269 $265 $5 $26,931 ($26,463) ($26,463) $26,931

Totals $758,502 ($1,794,205) ($1,794,205) ($2,829,909)

Hourly LMP Market vs Penalty For Non-delivery

January 7, 2014

DA RT Penalty
PJM’s unduly burdensome penalty is exacerbated by the elimination of Out of Management Control (“OMC”) outages, this includes force majeure events like Hurricane Sandy or a catastrophic failure of the natural gas transmission system. Consider the following, if that same unit was forced out for all of January due to a force majeure issue such as an earthquake or other natural disaster, the all-in penalty exposure could vastly exceed the penalty cap proposed by PJM. The proposed construct puts generators at extreme risk without demonstrating such risk is necessary to increase reliability and without demonstrating that any increase in reliability is worth the significant extra cost which will be borne by load.

Forced outages are unavoidable events that will happen even with increased maintenance budgets. As a result, many resources will not accept the over-the-top risk of the proposed penalty construct and exit the market. The result for PJM will be a less reliable system. PJM’s proposed elimination of any force majeure opportunity is unjust and unreasonable. It is standard practice across the contracting spectrum to recognize that certain events occur outside of an entity’s control. PJM’s elimination of the force majeure construct places resources at significant risk that is uninsurable and fully outside of their control. Consider the following, if the natural gas pipeline supplying an asset was severed by an earthquake, the unit could be subject to imminent bankruptcy risk due to the extreme penalty provisions proposed by PJM. PJM’s flawed logic in this situation is exemplified by the notion that the same unit would be forgiven from its penalty exposure if the electric transmission system was also disabled by the same earthquake. PJM must reinstate the ability for resources to justify reasonable excuses for performance, including the long-standing and legally sound concept of “impossibility” via force majeure. Outright elimination of the construct does not advance reliability and instead increases the frequency of ownership changes for specific assets due to bankruptcies or foreclosures.

The Coalition remains skeptical that increasing the penalty for resources is the correct method to improve fleet-wide performance. Adoption of the additional reforms suggested in this letter will dramatically increase both unit flexibility and availability to support the reliable operation of PJM’s system. However, if PJM continues to advocate for increased penalties, the Coalition suggests that PJM simply improve upon the existing EFORp construct by removing the existing portfolio netting clause. This would dramatically increase the severity of this penalty. Should PJM continue to articulate the need to augment its current penalty structure, we suggest that the total annual penalty exposure should be capped at 100% of the gross capacity revenues paid to the asset. This alone provides resources with sufficient “skin in the game” to take their performance requirements seriously. It is further compounded by the risk that balancing charges will push the all-in penalty dollars well beyond the total capacity revenues paid to the unit on top of the lost profits associated with not earning revenues during peak load times.

IV. The “Non-Performance Penalty Offset” Provisions Improperly Discriminates Against Project-Based Development

One reason PJM may feel resource owners can manage the risks associated with the extreme penalties proposed is the “non-performance penalty offset” provisions. PJM proposes that a “Capacity Market Seller may offset the penalties applied to its Capacity Resource via energy production from an uncommitted unit . . . defined as a unit for which all or part of the unit’s capability does not have an RPM commitment for either the Capacity Performance or Base Capacity products for the Delivery Year . . . and applies to units in the Generation Owner’s portfolio.”

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2 PJM Capacity Performance Proposal at P. 28.
On its face, this provision appears to state that the penalty offset would be available only to those resource owners that have uncommitted units within their portfolio. This restriction unfairly increases the penalty exposure for single resource owners or owners who cannot house their generation entities in a single legal entity relative to PJM’s largest resource holders. This seems particularly inequitable given that this segment of the market currently accounts for a disproportional percentage of the new entrants. While the Coalition does not support moving forward with the proposed design, if such a design is advanced, it needs to treat all supply participants equally.

A more equitable and appropriate market design would continue to reflect RPM’s current accommodation of transactions for capacity between buyers and sellers. Currently, PJM provides for unit-specific bilateral transactions defined as transfer of the “rights to or control of a specified amount of installed capacity from the Seller to the Buyer.”\(^3\) Auction Specific MW Transactions are similar transactions and entail the “physical MW of capacity from a seller to a buyer at the location of the physical resource identified as supplying the transaction.” A fundamental difference between the two products is the allocation of the performance obligation between buyers and sellers.

PJM should explicitly state that the Non-Performance Penalty Offset includes available capacity purchased through the existing bilateral contracting mechanism. Leveraging this market-based mechanism will create parity between all market participants and eliminate the inappropriate bias towards larger utility holding companies. As part of its proposal, PJM should also consider providing the penalty taken from generators that underperform and providing it to over-performing resources. This would provide an additional incentive via an express revenue opportunity for supply. These reforms will provide significant value to both load and PJM.

Failing to recognize opportunities within the RPM market design to properly manage risk exposure through the Non-Performance Penalty Offset inherently favors market-share consolidation, thus providing an incentive to consolidate generation supply amongst a few large players. This incentive erodes competition between market participants, raising both market power and design concerns. As market consolidation increases, PJM will be forced to increase mitigation to arrive at competitive market outcomes. Forcing an administratively induced competitive outcome is not synonymous with true competition where market fundamentals foster competition, resulting in the lowest cost service to ratepayers.

Increased market consolidation erodes PJM’s stakeholder voting construct whereby a diverse group of stakeholder interests cast independent votes to amend the regulatory construct in which the entities participate. Inherent in this democratic construct is the notion that large and small entities from all sectors have an equal stake in the outcome. Consolidation of supply interests threatens that balance by reducing the overall number of members representing supply-side interests. As the number of individual members in the sector decreases, so does PJM’s ability to gain a sector weighted majority vote for a given item. This decreased ability to build consensus erodes confidence in the markets ability to successfully self-govern. As such, PJM should take steps to ensure all market participants are able to participate in RPM on equal footing. PJM should revise its proposal and expand the Non-Performance Penalty Offset to allow bi-lateral transactions between unaffiliated buyers and sellers (as permitted under current rules).

V. Conclusion

\(^3\) PJM Manual 18: PJM Capacity Market at Sec. 4.6.1, P. 62.
The PJM proposal does little to address issues that will continue to arise for gas generators during extreme weather events. The focus on extreme penalties for events that in many cases generators can do nothing to prevent is unreasonable. PJM appears to be moving forward without considering changes to its own operations that could enhance reliability beyond any actions gas-fired generators could take on their own.

Jumping to the conclusion that gas-fired generators cannot provide the same level of reliability as other generators is short sighted. Not allowing gas generators to operate under the constraints of the pipeline system that in many cases will still leave it more flexible than its peers is unfair and holds gas-fired generators to a higher standard than less flexible units. The market reforms discussed herein would significantly enhance reliability throughout the delivery year by leveraging PJM’s existing market design while also being more reflective of market realities.

Respectfully submitted,

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