I. INTRODUCTION

The Pennsylvania Public Utility Commission (PAPUC) is very cognizant of the sustained cold weather events of this past winter and its impact on the generation and transmission of reliable electricity supply to the residents of Pennsylvania. We are therefore appreciative of the efforts of PJM Interconnection LLC (PJM) and the Enhanced Liaison Committee (ELC) in working to identify key weaknesses in the current PJM wholesale tariffs and manuals in an effort to improve the performance of the wholesale market. Among the necessary changes, the PAPUC firmly agrees that the existing EFORd and EFORp\(^1\) non-performance penalties and imbalance provisions have proven to be insufficient to ensure generator performance during key peak periods on the system.

The PAPUC is patently aware that the Capacity Performance Product (CPP), as proposed, would increase capacity prices from 30-40% during the years that the market transitions fully to the new market design. The PAPUC will closely monitor the proceeding to ensure that our ratepayers are receiving the promised reliability that they will be paying for.

There is no need to revisit the statistics that lead us to this conclusion – PJM has documented these facts sufficiently to date. What is important is that the parties remain focused on the core issues of non-performance penalties, incentives, and risk mitigation.

PJM staff has presented two alternative hourly non-performance penalty schemes. The PAPUC recommends adoption of a modified hourly non-performance penalty

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\(^1\)EFORd is the probability that a generator will fail completely or in part if needed. EFORp is the actual rate at which a generator failed completely or in part when needed during pre-defined peak hours.
provision as described herein. Additionally, the PAPUC encourages PJM to discuss these alternatives with its stakeholders in subsequent meetings so that a thorough examination of penalty alternatives can occur with an optimal solution emerging from a more comprehensive stakeholder discussion.

The PAPUC also recommends that PJM not rush to resolve other issues unrelated to the winter events of 2014. To the contrary, PJM should continue to engage interested parties, PJM stakeholders and public utility commissions in the issues of demand response (DR), and market power mitigation. There is not sufficient time to examine the complex legal, design, and implementation issues for a “Plan B” for DR by the 2015 Base Residual Auction (BRA). While we appreciate the effort of PJM staff to raise these issues, their proposals for a Plan B fall far short of the level of detail required for a tariff filing.

As another example, PJM, in its latest iteration of the CPP, proposes to eliminate the 2.5% short term resource procurement target, often referred to as the 2.5% “hold-back” and proposes to remove market power mitigation screens for any BRA capacity bids below the Net Cost of New Entry (NetCONE). These proposals have only a tangential relationship to the Enhanced Liaison Committee core mission – to improve incentives for these generators to perform when called on. Both changes, however, can have profound impacts on the PAPUC’s goal of ensuring reliability at just and reasonable rates, and should be considered as part of a discrete stakeholder process to ensure that any such revisions procure adequate capacity at least cost to consumers.

II. ISSUES TO BE ADDRESSED FOR THE 2015 BRA FOR DELIVERY YEARS 2018/2019

As articulated above, the PAPUC agrees that PJM should focus on improving peak period generator performance through a more effective penalty structure. An effective penalty structure will provide the necessary incentives for generating units to make the optimal investments in their equipment, which logically should be reflected in their BRA cost-based bids. The PAPUC offers the following comments on this penalty structure, and related issues.
A. Number of Generator Capacity Products

- **Number of Generator Capacity Products** - The PAPUC believes there should be only one generator capacity product, absent clear and compelling arguments for two products. These products should be required to perform as proposed, under all hot and cold weather alerts, as well as emergency generation alerts and events when called by PJM. While the PAPUC appreciates the demand studies that demonstrate that summer peak day requirements are currently in excess of peak winter requirements, the consequences to customers for non-performance during severe winter weather events presents unacceptable risk to the health, safety, and property of households and business in our Commonwealth. Moreover, summer DR products can be procured more efficiently and cost effectively to address any short or long-term resource requirements if necessary.

- **Exceptions to One Generator Capacity Product** - PJM has not provided sufficient information to demonstrate that existing generators cannot make the necessary operational investments or enter into bilateral contracts to mitigate non-performance risk during peak periods for the 2018/2019 delivery year. If PJM can provide sufficient information to clearly document why these objectives cannot be achieved, it may be appropriate to provide a very brief transition from two generator capacity products to one. However, given the severe consequences of non-performance, especially in the winter, compounded by continuing market power concerns, the PAPUC cautions against two generator capacity products at this time.

- **Capacity Market Must Offer Requirements** – It has not been asserted that the 2014 winter events have had any impact on the existing structural market power conditions of PJM. If anything, recent events strengthen the need for application of market power tests during peak summer and winter conditions. Therefore, capacity resources should continue to have a must offer requirement in the BRA for capacity. In the event two capacity markets coexist, the units should be required to offer cost-based bids into both markets to avoid any potential market manipulation (e.g., coupled offers).

B. Design Components For An Effective Hourly Non-Performance Penalty
• **Hourly Non-Performance Penalty Calculation** – Hourly non-performance penalties should be the higher of LMP or NetCONE * 350/365 times the units Installed Capacity (ICAP). PJM staff’s proposal to fix the penalty rate in $/MWH based on NetCONE provides insufficient penalties to perform when real-time LMP rises above the fixed hourly penalty rate. In that instance, the generator does not have increasing incentives for performance as prices rise. Penalties should “fit the crime.” Currently, consumers are forced to absorb higher and higher energy costs directly related to generator non-performance. This imbalance must be corrected. One way to do this is basing hourly penalties on the daily generating capability of the unit (ICAP) committed to the market, but mitigating the cumulative penalty exposure back to Unforced Capacity (UCAP) for the purposes of annual penalty caps.

• **Annual Penalty Caps** – The PAPUC appreciates PJM’s staff’s sensitivity to concerns regarding uncapped liability expressed by new generation market entrants. Without new market entry, PJM cannot sustain a truly competitive market. The PAPUC therefore agrees that a fixed maximum cap is an appropriate mitigating provision. However, this mitigation must also maintain the appropriate balance between capacity market risk and reward. In the second staff proposal, the annual penalty cap was set at 1.5 times NetCONE times the UCAP obligation. While this does establish a maximum penalty exposure, the penalty could be far in excess of actual BRA revenues received by a generation unit for the applicable delivery year. This level of risk/reward balance would likely serve to drive up necessary generator investment returns and ultimately impose additional costs on electricity consumers. A more appropriate balance may be obtained by basing the maximum annual penalty cap upon 1.5 times UCAP times the lesser of NetCONE or the cleared BRA price for the unit.

• **Stop Loss Penalty Mitigation** – PJM staff’s updated CP proposal includes a rather complex list of stop loss penalty mitigation provisions that limit aggregate penalties related to one “outage event.” However, the phrase “outage event” is not defined in the updated proposal, and this lack of clarity would likely undermine efforts to develop more effective incentives for generator performance. For example, is an “outage event” non-firm delivery of power, which could be repeated multiple times under the same “outage event” category? If a unit fails to start for the same reason repeatedly, is this the same “outage event?” There may also be unintended consequences of such a penalty mitigation strategy, such that,
after 31 days, 61 days, 91 days, and 121 days, a unit no longer has strong and continuing incentives to improve performance. Lastly, the penalty caps proposed in the updated proposal are inconsistent with the annual penalty cap provisions. Any new proposals for stop loss penalty mitigation, if appropriate, should address these deficiencies. Moreover, as we saw last winter, performance issues are likely to hit consumers the hardest during relatively short and isolated periods of time. To that end, PJM and its stakeholders should examine closely these provisions to ensure that any future stop loss penalty provision appropriately balances generator unit risk mitigation with the impact on consumers in terms of energy prices and the potential for damages related to loss of power.

• **Hourly Non-Performance Mitigation** – The PAPUC agrees that capacity resources should be able to offset hourly non-performance penalties through simultaneous replacement of power, or a corresponding reduction in load, from uncommitted capacity resources. However, especially during peak periods, it is important that this replacement of energy be at the same price or lower. A simple MW for MW replacement of energy, especially on peak, exposes customers, who are paying for these resources to perform, to higher energy market prices. Further, during peak demand conditions, market power can be exercised, which could lead to manipulation of power markets. A very simple means of avoiding these issues can be achieved by adopting market rules that prohibit replacement power from being sold in excess of the non-performing unit’s cost-based energy market bids.

• **Out of Management Control (OMC) Events** – The PAPUC supports PJM staff’s proposals to significantly limit excused exceptions to non-performance penalties.

• **Hourly Non-Performance Penalty Refund Allocation** – Aggregate penalties should be allocated to load. PJM and other industry sources are all in agreement that capacity costs will strengthen as a result of PJM’s new CP proposal. Strengthening capacity prices is the inherent incentive offered to generators to improve performance. To the extent continued non-performance does occur, all non-performance penalty revenues should be allocated to load-serving entities (LSEs) that were assessed these higher capacity charges. Last winter, customers bore the burden of annual capacity costs, uplift costs and elevated energy costs associated with the non-performance of certain generation units. This imbalance must not be perpetuated in future market designs. Units capable of producing
energy in excess of their ICAP obligations already have, and will continue to have, incentives to provide additional energy into PJM markets, or bilaterally transact with other committed generation units to mitigate their penalty exposure to non-performance, especially during peak critical hours when LMP markets prices are elevated.

C. Performance and Eligibility Requirements

- **Performance Requirements**—The PAPUC agrees with the updated PJM staff proposal that PJM should not dictate specific performance requirements, but rather allow generators and DR resources to determine how they will optimally design their systems to provide power, or reduce load, when called on by PJM to perform. In general, capacity resources that are unable to provide power when called on by PJM due to unit parameter limitations should self-schedule in the day-ahead market, bilaterally contract for replacement power, or be exposed to non-performance penalties. This policy should provide the proper long-term market incentives for resources to respond to future flexibility requirements of PJM’s load. The PAPUC encourages PJM to provide transparent aggregate market demand forecasts to help facilitate capacity resource commitment decisions in the day-ahead market.

- **Day Ahead Offer Requirement** – Capacity resources should be required to make Day Ahead Energy Offers each day based on the ICAP component of their committed generation units. The PAPUC asserts that the entire unit should be offered into PJM markets – not just an amount which reflects the unit capacity less the average annual forced outage rate of a unit, often referred to as the EFORd. However, the PAPUC does agree that annual penalty exposure should be adjusted to reflect actual UCAP obligations that form the basis of their annual capacity compensation.

D. Recovery of Capacity Resource Costs

- **BRA Cost-Based Bids** - Capacity Resources should bid in their prudent going forward costs in the BRA. These costs should include all prudent investments and costs necessary to provide energy, especially during peak system conditions. As suggested by PJM staff, PJM should extend this cost allowance to include prudent investments and costs, coupled with prudent operational practices to assure
delivery of natural gas or back-up fuel during these peak period events. PJM should not direct how firm delivery of energy is provided but instead should rely on appropriate penalty structures to ensure performance. Capacity resources should be permitted to form commercial relationships with uncommitted units, such as intermittent resources, or DR resources, to minimize non-performance risk in the most cost-effective manner reasonable. Units that consistently fail to provide firm service should likely be referred to FERC’s enforcement division for further action.

III. ISSUES THAT NEED TO BE ADDRESSED IN FUTURE INCREMENTAL AUCTIONS


- Incremental procurements for transition years – In PJM staff’s updated CPP proposal, PJM proposed to procure up to 10,000 MW of winter capacity for the December 2015-March 2016 period, in addition to several other market improvements that are making their way through the formal stakeholder process. This is the type of precise, targeted transitional solutions which may be needed to assure winter performance. The PAPUC supports this type of approach to the transition years. The PAPUC encourages PJM to include generation, Energy Efficiency and DR in these incremental auctions to ensure that an optimal and reliable solution is achieved. Conversely, PJM staff has proposed rebidding portions of the 2016/2017 and 2017/2018 BRA procurements and proposes to attempt to replace current capacity commitments with the newly proposed Capacity Performance Product. The PAPUC finds this proposal insufficient to address existing winter reliability issues. There are no assurances that capacity resources that failed to perform in the 2014 winter will offer in this program. Instead, it is more rational that resources that are already capable of meeting a higher performance standard will preferentially bid into this program, essentially raising capacity prices as much as 178% and 76% respectively for these two delivery years, with no assurances of improved performance.

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2 PJM has proposed to replace up to 80% of the existing capacity product with the capacity performance product, while placing a BRA clearing price cap of 50% of the RTO NetCONE for the first year, and a 60% of NetCONE for the second year.
• **Alternative 2016/2017 and 2017/2018 Delivery Year Transition Program** – The PAPUC recommends that PJM approach these delivery years in the same fashion as the 2015/2016 year. After thoroughly reviewing the impacts and measures already taken to improve winter performance, as well as the effects of any subsequent PJM process and market improvements, PJM should target procurement of any necessary incremental winter capacity, taking into consideration any peak day requirement adjustments resulting from forecast updates, as well as any excess procurements already achieved in the relevant delivery year BRA. PJM and some generators have already taken specific actions to correct winter generator performance deficiencies, including:

- Voluntary winter testing programs,
- Issuance of a cold weather best practices checklist,
- Measures to improve generation performance, and
- Improved documentation of units with alternate fuel capability.

In addition, PJM’s stakeholder process is examining additional processes and market improvements, including, but not limited to:

- Changes to tariffs to permit recovery of energy related costs in excess of $1000,
- Providing flexibility to generators to adjust energy bid prices for intraday dispatch,
- Increasing the energy and reserve prices paid to generators on conservative operation days,
- Interchanging volatility changes that will result in more optimal unit commitment decisions and increase reliability, and
- Enhanced Parameter Limited Schedule changes to require generators to more accurately report unit inflexibilities and operating limitations prior to conservative operations days.

The PAPUC strongly advocates for continued examination of these items.

Lastly, FERC, NAESB, PJM and others are already focused on the very critical issue of gas/electric coordination. On March 20, 2014, FERC issued a Notice of Proposed Rulemaking (NOPR) proposing to revise its regulations to better coordinate scheduling of natural gas and electricity markets in light of increased reliance on natural
gas for electric generation, as well as to provide additional flexibility to all shippers on interstate natural gas pipelines. On September 29, 2014, NAESB filed a report notifying FERC of the adoption of consensus NAESB Wholesale Gas Quadrant standards revising the nationwide evening, and intraday nomination timelines. Comments on the NOPR and the NAESB standards are due November 28th of this year. FERC’s conclusion of these coordination enhancements should have very profound impacts on the reliability and flexibility of gas-fired generation.

Given the many efforts underway to improve winter generator performance, the PAPUC believes it is unwise to expose customers to substantial transition costs without gauging either the effectiveness of these measures or the effectiveness of the proposed solutions. A more measured and targeted approach, based on more current information as to the effectiveness of all these measures, is likely the better road to follow.

IV. ISSUES TO BE ADDRESSED IN FUTURE PJM STAKEHOLDER DISCUSSIONS

A. DR PJM Market Changes

- **DR Participation in BRAs** – PJM staff has proposed to shift DR participation in the BRA from a supply side resource to a demand side resource. Staff further proposes that LSEs participate in the auction by offering demand side bids as Base Capacity Resources or Capacity Performance Resources. These changes are proposed in response to recent federal court decisions. On appeal of FERC’s Order 745, the DC Circuit Court of Appeals ruled that FERC did not have the jurisdiction to set rates for DR in energy markets. That decision has now been stayed pending FERC’s potential appeal to the Supreme Court. If FERC does appeal, the stay will continue in effect pending Supreme Court review. The PAPUC contends there are many open questions as to whether this decision will have any impact on DR participation in capacity or ancillary service markets. Until there is more certainty on this issue, no action should be taken to modify the PJM tariff or manual as it relates to DR. Current DR markets are very effective, efficient and well-functioning, and have played no negative role in the recent winter performance issues. In fact, DR played an extremely positive role to avert potential system curtailments when it helped fill the gaps caused by non-performing generators this past winter. Further actions to change the rules
regarding DR may have the unintended effect of weakening an important asset that can help avert system outages as further coal generation retires in the near future.

- **Insufficiently Defined DR Proposal** – While the PAPUC appreciates staff’s newly introduced DR proposal as a “Plan B” to respond to the legal uncertainties initiated by the DC Circuit decision and the pending First Energy Complaint at FERC, PJM’s DR proposals are insufficiently defined and lack important implementation details. For example, it is unclear if PJM’s proposal to redefine the DR products from Limited DR, Summer Extended DR and Annual DR to Base Capacity DR and Capacity Performance DR will cause substantial decreases in DR market participation. Staff also proposes that only LSEs or EDCs can offer demand bids for DR in the BRA. This suffers from several shortcomings. First, most LSEs and many EDCs are not DR service providers. Second, most LSEs have no certainty as to who their customers will be three years into the future. Given these challenges, the PAPUC asserts that PJM staff’s proposal would likely cause severe disruptions in the market – disruptions which PJM can ill-afford during these times of winter non-performance issues and retiring coal units.

- **PJM DR Working Group** - PJM should establish a working group to develop a thorough and functional DR alternative that can enhance DR participation in PJM markets. PJM should work with Curtailment Service Providers (CSPs), utilities and public utility commissions to develop a “Plan B” for DR participation in the PJM markets. This plan should address: (1) how CSPs and utilities can be more efficiently integrated into potential future market structures; (2) how measurement and verification can be maintained or enhanced; (3) how DR market-based compensation can continue; and (4) how DR participation can be enhanced. After developing a more effective DR plan, PJM should introduce this plan to the stakeholders for further discussion.

- **2.5 Percent Holdback** - PJM has historically withheld procuring 2.5% of its generation resource requirement in the BRA. PJM now proposes to eliminate this 2.5 percent holdback. The PAPUC supports continuation of the 2.5 percent holdback, as it has been effective in avoiding over-procurement of resources in light of PJM’s tendency to over-forecast its reliability requirement. More specifically, over the past three BRAs, PJM’s reliability requirement was adjusted downward between 3.3-6.9 percent from the date of the BRA to actual load during the delivery year three years later. These adjustments are well in excess of
the 2.5 percent holdback. Moreover, a recent study by the Brattle Group (prepared for the Sustainable FERC Project) documented a further impact of PJM’s failure to include the effects of existing and planned energy efficiency programs in its forecasting process, providing further evidence of the need to retain the 2.5 percent holdback to avoid over-procurement of capacity and unneeded cost imposition upon end-users. The PAPUC asserts that consistent over-forecasting and the ability of customers to implement demand reduction plans when required to maintain system reliability support the retention of the 2.5 percent holdback. Moreover, as measured by PJM’s Independent Market Monitor, the additional price effects imposed upon end-users from elimination of the holdback equals approximately $2.4 billion, an increase of roughly 32 percent in capacity market revenues. Further, the 2.5 percent holdback is not germane to the reliability and operability issues addressed by PJM in its CP Proposal and therefore, should not be addressed as a part of that plan.

B. Market Power Mitigation Proposed Changes

- PJM staff has proposed to modify important market power mitigation protections embedded in PJM’s Tariff. Specifically, under staff’s latest proposal, Capacity Performance offers, up to the Net CONE value, will not be subject to mitigation based on the individual resource’s Avoidable Cost Rate. The PAPUC asserts that it is not entirely clear this change is related to the penalty structures proposed, especially if annual penalty cap provisions are modified to be based on the lower of BRA revenues or NetCONE. According to the most current and all historic State of the Market Reports for PJM, the aggregate and local capacity market remain “Not Competitive.”³ Neither PJM nor the Independent Market Monitor (IMM) has introduced any data that capacity markets are somehow now effectively competitive. Essentially, nothing has changed. If anything, recent and projected coal plant retirements and other aging power plants make these important market power mitigation protections even more vital to electricity consumers as the excess capacity in PJM dwindles.

C. Price Stability Mechanism

- PJM proposes to incorporate a mechanism in the clearing of Capacity Performance resources that would place a limit on the percentage price change year-over-year

³ 2014 Quarterly State of the Market Report for PJM: January through June, Page 6, Table 1-3.
between RPM auctions. The PAPUC again asserts that this is not related to the core issue which must be addressed – generator unit non-performance. PJM asserts that “price certainty” is required, yet fails to identify any actual current market design flaw necessitating this action. In fact, PJM has successfully over-procured required capacity in every BRA. Moreover, the proposal is undefined, and fails structurally, since PJM would likely not scale back BRA prices in the event the resource requirement was not achieved in the BRA. Thus, PJM is more likely to seek to hold prices above market clearing levels if subsequent BRA clearing prices dropped, but would likely not decrease prices in the event of a sudden increase in BRA clearing prices.

V. CONCLUSION

The PAPUC respectfully requests that the PJM Board remained focused on resolving the key issue – mainly PJM’s less than adequate EFORd and EFORp performance penalties and develop a more effective daily non-performance penalty to replace the EFORp penalty structure. All other issues should be deferred for further review and discussion. Transition year reliability concerns should be addressed when necessary, as more fully discussed herein, taking into consideration the performance improvements resulting from the cumulative market improvements to date. The PAPUC emphasizes that market disruptions related to transition year procurement activities should be mitigated to the maximum extent practicable.

Respectfully submitted,

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