I. INTRODUCTION

The Pennsylvania Public Utility Commission (PAPUC) herein provides its comments and recommendations in response to the PJM Interconnection, LLC (PJM) Capacity Performance Proposal issued on August 20, 2014. The PAPUC appreciates the opportunity to submit comments on this important matter.

The PAPUC is the agency responsible for the regulation of utility rates and service as well as for the oversight of the retail competition in the Commonwealth of Pennsylvania pursuant to the Public Utility Code. The PAPUC has a particular interest in minimizing a repetition of the inadequate generator performance that occurred during the polar vortex of January 6-9, 2014 and the winter storm event on January 17-29, 2014. During the Polar Vortex, unplanned generator shutdowns and the inability of generators to start due to cold weather conditions, the stress of extended run times, natural gas interruptions and fuel-oil delivery problems challenged grid reliability and adequate power supplies during the month.

PJM experienced a 22% forced outage rate on January 7, 2014, far above the historical average of 7%. Natural-gas-fired generators accounted for 47% of the unavailable megawatts and coal-fired generators accounted for 43%. In addition to the generation outage, the PAPUC is extremely concerned about the significant price spikes that occurred during both the polar vortex and the late-January winter storms that generated considerable concern and real financial impacts on the part of PA ratepayers.

1 These comments are being submitted to the Enhanced Liaison Committee of the Markets and Reliability Committee on the PJM Capacity Performance Proposal

2 66 Pa. C.S. § 101 et seq.

The PAPUC appreciates PJM’s proactive actions in convening this committee effort and in permitting the states to participate. The PAPUC looks forward to continuing dialog with PJM and other stakeholders on these issues.

II. SUMMARY OF POSITION

- Based on the very significant amount of 2014 winter generator non-performance, it appears that PJM’s existing performance penalties do not currently and have not historically provided adequate incentives for peak period generator performance. As evidenced by what occurred in January 2014, the existing weak penalty structure has and will continue to threaten system reliability. PJM’s proposed LMP-based daily non-performance penalties are an overdue and much needed improvement to incenting better generator performance during difficult weather conditions. However, PJM will need to further address how its proposed Non-Performance Penalty Offset will be implemented in energy markets.

- The Capacity Performance Proposal (PJM CPP or CPP) appropriately eliminates lack of firm fuel as a valid excuse for non-performance under an “Out of Management Control” (OMC) event.

- The creation of four capacity products is appropriate, given the need to maintain adequate system reliability and flexibility to address future load swings and growth of intermittent renewable resources. PJM will need to work closely with load interests and generator owner interests to establish the least cost combination of these four capacity products and the necessary minimum operational parameters for each of these products to ensure reliability and to manage this transition. Capacity markets are characterized by high short term market power. To mitigate market power concerns, appropriate rules for bidding these products into the base residual auction (BRA) and more optimal rules for clearing these four capacity products will be necessary to avoid market price disruptions.

- The CPP does not adequately address in sufficient detail how reliability will be assured during the next three winter periods. Given the lack of incentives for generators to perform on peak, PJM should consider transitioning to LMP-based non-performance penalties during this interim period. Generators should be given the opportunity to modify their existing commitments, or consider competitive bidding methods for existing generation to commit to higher performance standards in exchange for recovery of investments necessary to meet the Capacity Performance Resource (CPR) reliability and flexibility requirements.
III. COMMENTS

Capacity Products

In its August 20, 2014 PJM Capacity Performance Proposal\(^4\) (PJM CPP or CPP), PJM Staff proposed four capacity products—Capacity Performance, Base Capacity, Extended Summer Demand Response, and Limited Demand Response—be procured in each of the PJM Reliability Pricing Model (RPM) BRAs.\(^5\) Each product will be discussed in detail below.

A. Capacity Performance Product (PJM CPP, pp. 8-11)

Under PJM’s proposal, Capacity Performance Resources will comprise 85-90% of procured capacity for a delivery year.\(^6\) In order to qualify as a Capacity Performance Resource (CPR), the resource must be able to deliver energy to load on the PJM system at all times, especially during system peak and emergency conditions, as demonstrated through a generation deliverability analysis. It includes generators capable of sustained, predictable operation at their Capacity Performance Installed Capacity (ICAP)\(^7\) for 16 hours per day for three consecutive days; Annual Demand Response capable of sustained curtailment for 72 hours; and Energy Efficiency.

To be eligible as a CPR, an officer of the generation resource’s owner would have to certify that specific requirements have been met:\(^8\)

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\(^5\) RPM is PJM’s capacity-market model. The RPM provides: (1) procurement of capacity three years before it is needed through a competitive auction; (2) locational pricing for capacity that reflects limitations on the transmission system’s ability to deliver electricity into an area and to account for the differing need for capacity in various areas of PJM; (3) a variable resource requirement to help set the price for capacity; and (4) a backstop mechanism to ensure that sufficient resources will be available to preserve system reliability.

\(^6\) Preliminary Loss of Load Expectation (LOLE) study results indicated that the RTO cap on the aggregate amount of Base Capacity, Limited DR, and Extended Summer products will be in the 10-15% range. PJM CPP at 18.

\(^7\) ICAP is the maximum generating capacity of a facility. It is the output level the unit can dependably achieve during summer conditions.

\(^8\) PJM CPP 8-11.
a. CPR Generator must have on-site fuel (or dual-fuel backup capability). Generators that burn gas only must have a secured fuel supply with some combination of firm transport, firm commodity and access to storage or equivalent to provide flexible operation during peak gas-usage conditions. External generators must also meet the Capacity Import Limit exemption criteria (i.e., must be electrically similar to the internal resource).

b. CPR Energy Efficiency (EE) plans must be determined by PJM to be complete in order to be able to offer into RPM auctions, and must demonstrate the committed level of reduction for the entirety of the Delivery Year for which they are committed (i.e., 365 days a year).

c. With respect to CPR Demand Response, the resource must be able to achieve load reductions to their reduction ICAP value for at least 16 hours per day for three consecutive days, including summer and winter periods, when called upon by PJM and must be available 24 hours per day for each day of the Delivery Year.\(^9\) Annual DR (discussed below) may comply as the Guaranteed Load Drop (GLD) category during the non-summer period without the requirement to reduce below the summer period PLC value. Demand Resources could also face direct permit or regulatory limitations if they are based on backup generation. All DR must be capable of responding to the equivalent of at least a 10 percent capacity factor to ensure they can be available during all potential hours in which Cold and Hot Weather Alerts are in place. Finally, shutdown and notification time must be less than or equal to 1 hour and minimum down time must be less than or equal to 1 hour.

d. Annual Demand Response must be available 24 hours a day, 365 days per year, and for 72 continuous hours such that it is capable of reducing demand at least in the amount of the committed quantity for the 16 peak hours of three consecutive days.

e. CPR storage must meet the same criteria as a generator. Storage units must be available to achieve full capacity output 365 days per year, and be able to achieve full output continuously for at least 16 hours per day for three consecutive days. Startup and notification time must be less than or equal to 1 hour and minimum down time must be less than or equal to 1 hour. Storage resources include pumped storage hydro plants, battery resources, and flywheels.

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\(^9\) PJM proposes to define the non-summer-period Peak Load Contribution (PLC) as calculated in the same manner as the current summer PLC, with the exception of utilizing the five highest coincident peak load values from the months of January and February.
f. Qualifying Transmission Upgrades (QTU) can offer into the RPM auctions only as the Capacity Performance product.

B. Base Capacity Proposal (PJM CPP 11-12)

Base Capacity products may include generation, Annual DR, and EE Resources. Capacity resources that satisfy the current Annual Resource Product Requirements, as defined in the PJM Tariff and Manuals, would generally qualify as Base Capacity with the following proposed enhancements.

a. Generation meeting the RPM eligibility requirements but not meeting those of the CPR would qualify as Base Capacity.

b. Annual DR is available for an unlimited number of interruptions during the Delivery Year, and must be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00 a.m. to 10:00 p.m. Eastern Prevailing Time (EPT) for the months of June through October and the following May, and 6:00 a.m. through 9:00 p.m. EPT for the months of November through April unless there is a PJM approved maintenance outage during October through April.10 PJM proposes to enhance the current definition of the Annual DR product such that the Annual DR nominated value determined using a non-summer-period PLC value (determined as described above) must not be less than that determined using a summer PLC. Alternately, Annual DR may comply as the Guaranteed Load Drop category during the non-summer period independent of the summer period PLC value.

c. EE Resources must achieve a permanent, continuous reduction in electric energy consumption at the End Use Customer’s retail site (during the defined EE Performance Hours) that is not reflected in the peak load forecast used for the BRA11 for the Delivery Year for which the EE Resource is proposed. The EE Resource must be fully implemented at all times during the Delivery Year, without any requirement of notice, dispatch, or operator intervention. The EE Performance Hours are between the hour ending 3:00 EPT and the hour ending 6:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year, that is not

10 This is not a change in operational hours relative to current tariffs.

11 The BRA allows for the procurement of resource commitments to satisfy the region’s unforced capacity obligation and allocates the cost of those commitments among the Load Serving Entities (LSEs) through the Locational Reliability Charge. The BRA is the first RPM auction for a specific Delivery Year.
a weekend or federal holiday. The demand reduction at winter peak load forecast must not be less than the Nominated EE Value in summer EE Performance Hours for EE to qualify as the Base Capacity product. EE for which the demand reduction in the winter is less than the Nominated EE Value in summer EE Performance Hours may qualify as Extended Summer product.

d. Storage resources would need to provide the amount of Installed Capacity for which they can provide energy for ten continuous hours without the need to recharge.

C. Extended Summer/Limited DR (PJM CPP 12)

Extended Summer DR is available for an unlimited number of interruptions during an extended summer period of June through October and the following May, and will be capable of maintaining each such interruption for at least a 10-hour period between 10:00 AM and 10:00 PM EPT. PJM proposed that EE resources based on load reductions not realized during non-summer periods will be treated as Extended Summer Product. Limited DR is available for interruption at least 10 times during the summer period of June through September, and will be capable of maintaining each interruption for at least a 6 hour duration on non-NERC holiday weekdays between 12:00 PM and 8:00 PM EPT.

D. Comments on Capacity Products

The PAPUC generally supports the creation of four capacity products and the enhanced availability, flexibility, and non-performance penalties and requirements of a CPR. The creation of the CPR will further enable PJM to mold its operational needs to conform to changing load conditions and intermittent generator requirements over time. It will be important for PJM to carefully review the comments of load and generation owner interests to ensure that the right balance of minimum operating parameters and portfolio share of total capacity resources is ultimately established for each product. Doing so will ensure a smooth transition to this new BRA auction and a least cost, optimal solution for retail customers. The PAPUC will be carefully reviewing the comments of the Enhanced Liaison Committee participants to gather further information on each of these issues.

The current staff proposal does not adequately define the minimum operational parameters for Base Capacity resources. The PAPUC suggests that these parameters be more adequately defined, to ensure PJM system operators have sufficient flexibility to call on these resources when needed to sustain system reliability.
E. Limited Resource, Sub-Annual Resource and Base Capacity Resource
Constraints and Auction Clearing Mechanism (PJM CPP 14-16)

1. **Summary of Proposal**

Limited Resource Constraints (LRC) set the maximum level of Limited Resources
to be procured in RPM Auctions for the Delivery Year. The Sub-Annual Resource
constraints set the maximum level of Limited DR and Extended Summer Resources to be
procured in the RPM Auctions for a Delivery Year. PJM proposes to continue to set
Limited Resource and Sub-Annual Resource constraints and to add Base Capacity
Resource Constraints for the RTO and each modeled Locational Deliverability Area
(LDA). The auction clearing software is an optimization algorithm. The BRA resource
clearing price for each LDA is determined by the optimization algorithm. The auction
clearing process can select more expensive Capacity Performance products, Base
Capacity Resources or Extended Summer Resources in lieu of more limited products with
lesser priced offers, if necessary, to enforce constraints.

2. **Comments**

The ability of current resources to meet the CPR requirements, as well as the
likely price impacts of these changes, has not yet been sufficiently established. Until
these issues have been adequately examined, PJM should consider other treatment of
constraints, such as minimum CPR resource requirements, to allow Base Capacity and
Capacity Performance resources to compete to provide reliability beyond the required
reserve requirement.

**Unforced Capacity and Installed Reserve Margins** (PJM CPP 19-21)

1. **Summary of Proposal**

Unforced Capacity (UCAP) is the Installed Capacity (ICAP) value of a unit
reduced by its recent actual forced outage rate (EFORd). EFORd is based on forced
outage data for the October through September period that occurs immediately prior to
the Delivery Year. Historically, PJM allowed generating units to remove forced outages
that were defined as Outside Management Control (OMC) from the forced outage rate
that determined the amount of UCAP that could be sold into RPM auctions. PJM
proposes that exclusion of OMC outages no longer be allowed in calculations for the
purposes of RPM UCAP. This is because the performance penalties ultimately adopted

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12 An LDA is an area within the PJM footprint that has been identified as constrained. Constrained
areas are determined by their ability to move electricity in the event of an emergency. LDAs are
determined yearly through PJM’s Regional Transmission Expansion Plan (RTEP). There are currently 27
sub-regions within the PJM footprint that are considered LDAs.
as part of this proposal will apply to generation resources regardless of the reason for a forced outage. No changes are being proposed to Intermittent Generation or QTUs.

PJM is proposing no change to the Installed Reserve Margin (IRM).\textsuperscript{13} The calculation of the IRM already assumes an average forced outage rate. Because the IRM assumes a better level of performance by Capacity Resources than has actually been observed, the current IRM calculation is expected to better align with actual operating conditions during the most stressed times of the year via the PJM proposal.

2. Comments

The PAPUC agrees with PJM regarding the removal of OMC for the purposes of determining the amount of UCAP that can be sold into the RPM auctions. Subject to review of the comments of ELC participants, the PAPUC agrees with maintaining the current IRM calculation, as it relates to forced outage rates.

Capacity Performance Availability and Flexibility Requirements (PJM CPP 21-25)

A. General Considerations

Supplemental to the individual asset class requirements described in the next section, the following requirements are common to all CPRs:

- EFORd less than 50%;
- Must be able to operate continuously for periods of at least 16 hours on three consecutive days;
- The cleared ICAP amount of the resource must be offer into the Day-Ahead Energy Market as economic, excluding the periods where the resource is on an outage for which a ticket was submitted and approved; and
- Offer parameters submitted with a Day-Ahead Energy Market offer must be based solely on the physical limitations of the resource (and PJM proposes to include in the tariff the acceptable levels of these parameters by unit class).

CPRs are expected to be staffed and ready to operate at all times except during a planned outage.

B. Criteria for CPR Assets (Base Load, Interday Cycling, Intraday Cycling)

\textsuperscript{13} The Installed Reserve Margin (IRM) is used to establish the level of installed capacity resources that will provide an acceptable level of reliability. The IRM is determined by PJM in accordance with the PJM Reserve Requirements Manual (M-20). The IRM is approved and posted by February 1 prior to its use in the Base Residual Auction for the delivery year.
1. **Summary of Proposal**

PJM uses three classes of resources to manage system needs each day: base load assets, interday cycling assets and intraday cycling assets. The base load asset class includes resource types that are typically operating any time that they are not on an outage (e.g. nuclear). The interday cycling asset class is comprised of resources that have startup and notification times that require them to be committed in the Day-Ahead Energy Market in enough time to meet the winter morning peak the next day and are dispatchable throughout the operating day such that PJM can reduce or increase their output as system conditions require. The intraday asset class is the most flexible and can quickly turn off and on to meet system operational needs. These resources are required to have at least two starts per day.

PJM proposes the following criteria as qualification standards for CPR:

- **Base Load Asset Class** – resources with more than 6,000 run hours a year; startup and notification time exceeds 12 hours; minimum run time exceeds 18 hours; and minimum down time exceeds 8 hours
- **Interday Cycling Asset Class** – resources whose startup and notification time is less than or equal to 12 hours; minimum run time is less than or equal to 18 hours; minimum down time is less than or equal to 8 hours; and economic minimum is less than or equal to 50% of the economic maximum
- **Intraday Cycling Asset Class** – resources whose startup and notification time is less than or equal to 1 hour; two or more starts per day; minimum run time is less than or equal to 5 hours; minimum down time is less than or equal to 2 hours; and economic maximum is greater than or equal to the economic minimum

2. **Comments**

The PAPUC generally supports the concept of having a portfolio of baseload, intermediate, and peaking resources to meet the load following requirements of retail customers, as well as meet the future challenges associated with an increasing penetration of intermittent resources. This operational flexibility will play an important role in mitigating future uplift costs associated with some currently inflexible generator operating parameters that contributed to significant uplift costs this past winter. PJM will need flexibility to respond to legitimate operational limitations of generation owners and will need to establish an appropriate balance between uplift costs, energy costs and capacity costs that result in a least cost solution to retail customers, as well as provide PJM system operators sufficient operational control to maintain transmission system reliability.
Base Capacity Availability and Flexibility Requirements

1. Summary of Proposal

PJM proposes that regardless of any emission or environmental limitations, annual capacity resources should have a startup and notification time of less than 48 hours. Resources that are annual resources must have operational availability of a minimum of 100 run hours per year to be considered an annual resource. This minimum availability is regardless of any emissions or environmental limitations. Storage resources must be able to run for at least 10 hours per operating day at the annual capacity output, but can be split into two 5 hour blocks. Additionally, the storage unit must have a minimum downtime of less than three hours between blocks and operate without the need to charge in between the run hours.

2. Comments

The PAPUC agrees with the concept of an appropriate amount of less operationally available Base Capacity resources. One of the reliability modeling limitations of this proposed Base Capacity Resource is the mere 100 hours of required minimum annual run hours. This minimum availability could lead to lower Base Capacity resource caps, increased need for more costly CPR units and unnecessarily higher reliability costs to retail customers. PJM should examine the potential for more optimal availability requirements for base capacity resources in order to identify more effective least cost solutions to meet the necessary reliability requirements. This examination should include the potential for higher availability requirements or the creation of lower and higher availability Base Capacity resources.

The minimum operational parameters for Base Capacity resources should be more adequately defined, to ensure PJM system operators have sufficient flexibility to call on these resources when required.

CPR Energy Market Must-Offer Requirements (PJM CPP 25-29)

A. Proposed Performance Requirement

1. Summary of Proposal

With respect to Daily Energy Offers, CPR generators and DR must provide market-based and cost-based non-emergency energy offers into the PJM Day-Ahead Energy Market, up to the committed ICAP value of the resource, every day during the Delivery Year unless the resource is unavailable due to a forced or scheduled outage. To the extent the resource has operational run-time limitations, it may not make itself available as emergency only but must use the Energy and Environmentally Limited
Opportunity Cost to make economic offers in a way that best allocates available run hours. Availability as emergency-only will be treated for performance measurement purposes as a forced outage. Offer parameters submitted with a Day-Ahead Energy Market offer must be based solely on the physical limitations of the resource. This requirement applies for all schedules, regardless of whether they are price-based schedules or cost-based schedules submitted for a given unit. PJM proposes to include in the Tariff the acceptable levels of these parameters by unit class and also proposes to maintain the exception process such that unit operators may reflect physical conditions at individual units that may deviate from these parameters.

2. Comments

The PAPUC generally supports the must-offer requirements of the CPP. However, the bidding behavior of DR capacity markets in energy markets should be examined closely to ensure that competitive bidding in energy markets by DR capacity resources exhibits competitive behavior during periods of tight market conditions. If recent bid behavior of DR capacity resources is not indicative of competitive behavior (i.e. bidding only a maximum allowable energy bid caps), PJM should consider alternative energy DR bid caps to protect against potential uncompetitive energy market bidding behavior.

B. Non-Performance Penalty Calculation

1. Summary of Proposal

PJM proposes a “real time LMP” penalty that would be applied for every hour that energy is not delivered, with a provision that failure to perform by one generator could be offset by energy produced by a non-capacity resource in the generation owner’s portfolio. This performance standard would require delivery of energy during all such hours if a unit was scheduled by PJM or self-scheduled to operate. The only exception from application of a penalty would be instances when PJM did not schedule a unit, or when the unit was on line but dispatched down by PJM. The non-performance penalty would apply for each hour when energy is scheduled as described above and not delivered. The hourly energy penalty, expressed as a formula, is: energy not delivered x LMP.

For units that would have been scheduled to operate by PJM but were forced out for the operating day, the penalty that would apply would be for the entire 24-hour period of the day for which the Hot or Cold Weather Alert was issued. A generating unit with a Capacity Performance commitment that would have been scheduled for a given Hot or Cold Weather Alert day, and physically could have been scheduled within the timeframe necessary, but was not scheduled by PJM because its startup and notification time was longer than physically required, will incur the above performance penalty for its entire committed ICAP value for all 24 hours of the day.
PJM proposes that the penalty also apply for self-scheduled resources. For resources that are self-scheduled at a fixed output quantity, the penalty for any hour will be calculated as the committed ICAP quantity minus the unit’s actual output (not less than zero MW) times the hourly integrated LMP at the unit’s bus for that hour. For units that are self-scheduled at a minimum output value and then dispatched by PJM above that value, the penalty for any given hour will be calculated the same as for units scheduled by PJM as described above. Annual DR committed as Capacity Performance resources will face the same hourly energy penalty applied to Generation Capacity Performance resources. Similarly, EE resources committed as Capacity Performance Resources and that either fail to achieve installation by the start of the Delivery Year or fail to achieve the required level of load reduction will be charged the hourly energy penalty applied to Capacity Performance Generation Capacity Resources for the Delivery Year. For resources acquired via bilateral transactions that did not clear in an RPM auction, the penalty caps would be based upon the RPM revenue the resource would have received had it cleared in the RPM Base Residual Auction for the applicable Delivery Year.

2. Comments

The PAPUC supports the concepts behind the proposed Real Time LMP non-performance penalty. The proposal appears to better address the critical incentives for generators to perform during system peak and system stress conditions.

C. Non-Performance Penalty Offset

1. Summary of Proposal

PJM proposes that a Capacity Market Seller may offset the penalties applied to its Capacity Resources via energy production from uncommitted units. An uncommitted unit would be 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. Energy produced by uncommitted units or portions of uncommitted units during periods when the above described penalty applies to committed units in the Generation Owner’s portfolio would be used to net against those penalty amounts. The exact offset would be determined based on the product of the megawatt-hours of output from each such uncommitted unit or partially uncommitted unit and the LMP at the uncommitted unit’s bus. Therefore, the penalty offset for a given Generation Owner would be the megawatt-hours of output from each unit over and above its committed Installed Capacity quantity, times the LMP at that unit’s bus, summed for all such units with uncommitted megawatts.
2. Comments

The PAPUC agrees with the PJM concept of permitting CPR units to offset non-performance with performance from other uncommitted generation units, external units, DR, or storage units. Granting the ability of CPR units to offset non-performance with other units should help capacity resources mitigate individual unit performance risk, while ensuring reliable supply. PJM staff should consider addressing the potential for CPR and Base Capacity Resources to raise energy prices by running more expensive uncommitted units. More specifically, PJM should consider the pricing of replacement energy at no higher than the energy price applicable to the non-performing unit.

D. Deficiency Penalty v. Non-Performance Penalty

1. Summary of Proposal

In the event that a given unit has a Capacity Performance commitment, but it does not achieve commercial operation by the beginning of the Delivery Year, the total penalty applied for the period until such time as commercial operation is achieved will be the greater of the Capacity Deficiency Penalty or the Non-Performance Penalty. The higher penalty applies to ensure that resource owners do not choose to remain in a deficiency as opposed to achieving commercial operation to avoid the rush of a Non-Performance penalty.

2. Comments

The PAPUC supports the concept of the Real Time LMP penalty, as it applies to new capacity resources. This proposal provides for an appropriate disincentive to market participants that choose to not diligently meet their market commitments by achieving commercial operation in a timely manner.

E. Other Issues (CPDR, EER, Base Capacity Resource Penalties, Penalty Cap, Credit Requirements)

1. Summary of Proposal

Annual DR and EE resources that meet their specific qualifications may offer and clear as Capacity Performance Resources. Annual DR committed as Capacity Performance Resources will face the same hourly penalty applied to Generation Capacity Performance resources. Similarly, EE resources committed as CPRs that either fail to achieve installation or the required level of load reduction will be charged the hourly energy penalty applied to Capacity Performance Generation Capacity Resources for the Delivery Year.
PJM proposes to maintain the current penalty structure for Base Capacity Annual DR Resources, as well as for Extended Summer and Limited DR resources. For Base Capacity generation resources, PJM proposes to apply the hourly energy penalty described above for non-delivery, but limited to those periods when PJM has loaded Maximum Generation or any more severe emergency procedure during the months of May through October.

With respect to the total penalty applied to any individual, committed CPR for any delivery year, PJM proposes a cap not to exceed 2.5 times the Delivery Year Resource Clearing Price credit applicable to that Delivery Year. Similarly, PJM proposes that the penalty applied to individual, committed Base Capacity Resource not exceed 1.5 times the Resource Clearing Price credit the resource received as a result of clearing the RPM auctions applicable to the Delivery Year. For resources acquired in bilateral transactions that did not clear in an RPM auction, the penalty caps would be based upon the RPM revenue the resource would have received had it cleared in the RPM BRA for the applicable Delivery Year.

Finally, PJM would be able to begin billing penalty amounts during the Delivery Year, very shortly after non-performance actually occurred. PJM would be able to withhold any remaining RPM revenues, and if necessary other revenues, to offset penalty charges as the Delivery Year progressed. As a result, while the potential magnitude of the penalties will increase under PJM’s proposal, most significantly for Capacity Performance resources, PJM does not propose to change RPM-related credit requirements from today’s levels due to the offsetting impacts of the change in the timing with which those penalties could be assessed.

2. Comments

The PAPUC generally supports the concepts of a Real Time LMP penalty, the establishment of annual maximum penalty amounts, the penalty billing proposal, and resultant credit provisions. However, as a matter of clarification, it is unclear whether the Real Time LMP penalty applies during winter Cold Weather Alert or Max Generation events for Base Capacity resources. The PAPUC recommends that PJM clarify that such penalties do apply during these winter events to adequately address recent winter performance issues.

Capacity Product Offer Requirements and Cost Based Offer Provisions (PJM CPP 29-31)

1. Summary of Proposal

There are three main issues with respect to offers into the capacity market: 1) The ability to reflect all costs associated with improving availability and performance during
peak periods; 2) The question of must-offer requirements for the Capacity Performance Product; and 3) The ability to reflect performance risk in capacity offers up to a threshold level so as to make symmetric the risk and reward for making investments to ensure performance while accounting for the fact that outages and non-performance may occur up to a certain level.

With respect to the first issue, PJM is not mandating a method as to how a resource owner must ensure fuel delivery, but is simply allowing these costs to be reflected in capacity market offers. The PJM Tariff is currently silent on the ability to reflect the cost of firm gas pipeline transportation and other costs associated with ensuring natural gas availability and delivery which could also include storage, the cost of balancing agreements with the pipeline that allow for flexibility in takes from the pipeline and/or park and loan services. PJM proposes to add another category into the Avoidable Cost Rate (ACR) or Allowance for Project Investment Recovery to specifically account for the aforementioned pipeline services. Volumetric firm costs can be reflected in energy bids, but only if they are not also included in capacity bids; this is to eliminate double-dipping.

The second issue remains an open question for PJM. This issue goes to market power mitigation. If all capacity were required to satisfy the criteria for the CPR, then the current must-offer requirement would make sense. If, however, there are multiple products, it is not clear how the must-offer requirement should apply. At a minimum, the must-offer requirement to offer into the capacity market as one type of product or another should apply, but with multiple products, market incentives and competitive forces should then take over with resources offering in the product areas that will result in the most surplus.

Lastly, PJM has developed a formula so that resource owners can have the ability to reflect performance risk, up to a threshold level, during peak periods in their offers. The ACR has 10% adder already to account for hard to quantify costs. Resource owners should have the ability to reflect performance risk during peak periods, up to some threshold level, in their offers so that there is some symmetry between risk and reward of being committed as a Capacity Performance product.

2. Comments

The PAPUC fully supports the clarifications to the PJM tariff and manuals to reflect the ongoing costs of providing firm generation capacity service in the Avoidable Cost Rate (ACR) and Avoidable Project Investment Recovery Rate (APIR) adjustments

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14 The formula is Risk Premium = Pool-Wide EFORd x Historic Hours of Hot and Cold Weather Alerts x Average Real-Time LMP during Hot and Cold Weather Alerts. PJM CPP at 31.
to capacity offers, as well as variable price based firm costs for supply in energy bids. However, reflecting recovery of fixed costs in variable charges for firm supply service by natural gas marketers, when combined with ACR and APIR capacity offer impacts, could result in less than optimal competitive market results. Such dual treatment of costs could result in both higher capacity and energy prices. PJM and the Market Monitoring Unit (MMU) should carefully review, and, if necessary, propose adjustments these cost recovery proposals if such provisions are not least cost to retail customers.

PJM has appropriately raised questions regarding capacity market must-offer requirements. In general, the capacity market, as noted in the MMU’s latest State of the Market report, is not structurally competitive, on an aggregate and local level. It is only through active market power mitigating measures (must-offer requirements and seller offer caps), that an effectively competitive capacity price is achieved. In order to continue to achieve effectively competitive outcomes, PJM will need to carefully address the must-offer complexities associated with bidding for two generation capacity products—CPR and Base Capacity. PJM should assess the must-offer requirements for these two products to ensure that market power is not exerted in future BRAs if these two products are implemented. Specifically, the feasibility of a must-offer requirement on both products should be assessed during the ELC process.

PJM has proposed allowing a “risk adder” to the cost based capacity offer. Noting the clear structural market power of capacity markets, PJM should carefully consider the need for an additional risk adder in light of the existing 10% adder and Real Time LMP non-performance penalty mitigation mechanism already embedded in the existing tariff and CPP. Further, the ACR, APIR, and energy price adjustments are proposed for the express purpose of reducing performance risk. As such, PJM should be careful not to overstate the magnitude of risk adders.

Lastly, the potential to include firm storage and transportation reservation charges in BRA bid prices will require PJM to address how release capacity credits will be accounted for. The PAPUC encourages PJM to work with ELC participants to address this issue.

Cost Allocation Methodology (PJM CPP 31-32)

1. Summary of Proposal

Current costs are allocated to LSEs as Locational Reliability Charges. The LSE Locational Reliability Charge is calculated as the LSE Daily Unforced Capacity Obligation times the Final Zone Capacity Price.\(^{15}\) There are two cost allocation options

\(^{15}\) The LSE Daily Unforced Capacity Obligation is an allocation of the Zonal Unforced Capacity Obligation to LSEs based on the LSE Obligation Peak Loads. The Zonal Unforced Capacity
discussed in the PJM CPP. The first is an extension of the existing method, adding in an adjustment for Base Capacity and adding CPR to the list of resource costs recovered from customers through the Zonal Capacity Price (ZCP). The second option is to allocate CPR costs in each LDA to zones based on zonal winter peak load forecasts. The CPR cost component would be added to the ZCP.

2. Comments

The CPP is somewhat responsive to the concerns regarding winter deliverability issues. As such, consideration of a winter-based PLC cost allocation contribution is consistent with basic cost causation principles. The PAPUC supports the concept, subject to further discussion, of introducing more diverse seasonal cost allocators.

Previous RPM Changes (PJM CPP 32-33)

1. Summary of Proposal

In March 2014, PJM proposed several other changes to the RPM process, specifically related to the RPM Incremental Auctions. PJM states that the proposals in its CPP will achieve the objectives of some of those previously proposed changes and states that the remainder of the proposed changes should be postponed until the CPP is implemented.

2. Comments

The PAPUC agrees with PJM that the prudent course of action is to wait until the implementation of the CPP so that the effects of the CPP in relation to the RPM proposals can be properly evaluated.

Transition Auction (PJM CPP 33)

1. Summary of Proposal

PJM proposes to hold an incremental auction for the 2015-2016, 2016-2017 and 2017-2018 Delivery Years to incrementally procure a sufficient amount of capacity that adheres to the performance standards and requirements of the Capacity Performance Product described in the CPP. The incremental auction process will establish a required amount of CPP that must be procured and the procurement auction will provide opportunity for resources with an existing capacity commitment and resources with no

Obligations are allocations of capacity procured in the RTO to zones pro rata based on zonal summer peak load forecasts. The Zonal Capacity Price is the sum of System Marginal Price and Locational Price Adder for annual capacity, adjusted for Limited DR and Extended Summer product price decrements, price decrements for external capacity resources, and make-whole payments.
capacity commitment for the applicable Delivery Year to compete to provide the required amount of CPP for which they would receive an incremental payment.

2. Comments

The PAPUC asserts that existing non-performance penalties are insufficient to address current and projected reliability requirements. We therefore agree that PJM needs to impose more effective non-performance penalties on generation resources during these transitional years. However, the PAPUC is concerned about how any additional costs will be recovered and the impact that will have on the Commonwealth’s default service providers’ existing wholesale contracts as well as the retail contracts of competitive electricity suppliers. Therefore, because PJM has not yet provided details on precisely how these transitional auctions will be implemented, the PAPUC is unable to formulate a position on the proposed transition auction.

Additionally, PJM should include in their subsequent proposals an improvement in the coordination between the gas and electric markets. Specifically, at a minimum, subsequent proposals should include better alignment of the natural gas and electric nomination deadlines, so as to enable natural gas generation owners to better adjust intraday gas deliveries. Future proposals should also enable natural gas generators to alter the price of their offers on an intraday basis so as to better reflect the current costs of natural gas supplies in their energy offers when they are called on by PJM to perform.

IV. CONCLUSION

The PAPUC appreciates the opportunity to provide these comments and urges the Enhanced Liaison Committee to consider the recommendations contained herein during its deliberations over the Capacity Performance Proposal.

Respectfully submitted,

James Melia
Counsel
jmelia@pa.gov

Eric Matheson
Assistant to Commissioner James H. Cawley
ematheson@pa.gov

Jennedy S. Johnson
Counsel
jennejohns@pa.gov
For: Pennsylvania Public Utility Commission
400 North Street
Harrisburg, PA 17120