Indicated PJM Central Suppliers Coalition Comments on PJM Capacity Performance Proposal Dated October 7, 2014

(October 28, 2014)

American Electric Power Service Corporation, The Dayton Power and Light Company, FirstEnergy Service Company, and Duke Energy Corporation, each on behalf of its affected affiliates, and East Kentucky Power Cooperative, IMG Midstream and PPL (collectively, the “Central Suppliers Coalition”\(^1\)) hereby submit the following comments on the Capacity Performance Updated Proposal issued by PJM Interconnection, L.L.C. (“PJM”) on October 7, 2014 (the “Updated Proposal”).

INTRODUCTION

The companies joined in the Central Suppliers Coalition represent over 69,000 MW of the installed capacity in PJM. Much of that capacity is located in Rest of Market areas of PJM that have not been provided with adequate compensation since the imposition of PJM’s capacity market clearing mechanism, the Reliability Pricing Model (RPM). The Central Suppliers Coalition has done extensive analysis on revenue adequacy in the RPM, and has determined that a majority of the merchant coal and nuclear fleet operating in PJM receive a return on investment below 10\%, with more than half of the units realizing negative returns. Significant re-investment must occur to improve unit reliability to the levels that PJM now seeks. For that investment to happen, the PJM Board must adopt the PJM staff’s proposal for a multi-year investment signal that will provide some assurance that capital re-investments will be recovered. Without the proposed multi-year pricing signal, critical transitional auctions, and penalties proportional to realized revenues, the necessary investments will not occur and PJM may actually accelerate the retirements of the very units it needs to retain.

The Central Suppliers Coalition stresses the importance of crafting rules related to capacity performance that strike an appropriate balance between risks and rewards. The risks are operational performance and the level of penalties imposed; the rewards for high performance need to include the opportunity to recover fair returns of and on investments. RPM has not done an effective job of providing the necessary returns on investment to date, despite the fact that PJM has done a significant amount of work to improve RPM over the past year. PJM has made changes to eliminate the damaging effects of inferior products, speculative offers, and ineffective auction parameters. Current levels of mitigation and a one-year price signal for multi-year supply commitments have left most capacity units unable to recover their long run marginal cost of operations. The failure of the PJM market as a whole and greater failure in the west to provide the level of revenues required to support new and existing generation is easily demonstrated. The capacity market provides well less than half of Net CONE in the Rest of

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\(^1\) AEP and Duke Energy are participating in this Central Suppliers Coalition on behalf of their affiliates that participate in PJM’s capacity market. PJM also proposes to apply the capacity performance requirements and penalties to entities that have chosen to self-supply through the Fixed Resource Requirement (“FRR”) starting in the 2018/19 Delivery Year. AEP and Duke Energy oppose any effort to apply the capacity performance plan to FRR entities.
Market zone. The failure of the capacity market to provide adequate, consistent revenue means that the PJM wholesale market as a whole is not revenue adequate. An analysis by the Independent Market Monitor (“IMM”) finds that revenues from all markets provide only 40 percent of the total revenues required to support a new combustion turbine in the AEP zone and a similar fraction for other zones in western PJM. For a new combined cycle unit, the overall performance is only marginally better, as the western market provides about 60 percent of the needed revenues.

Predictable and stable capacity prices benefit reliable and efficient wholesale markets. Adequate expected revenues are needed for competitive suppliers to be able and willing to build and maintain capacity. It is against this backdrop that PJM has proposed to transition quickly to a capacity performance (“CP”) product with enormous increases in performance expectations and penalties for non-performance. For the CP proposal to lead to a fleet of high performing capacity resources, the risks and rewards must be in equilibrium. While adding new risks for suppliers and commensurate rewards, PJM must also correct the existing revenue deficiency problems.

To ensure that PJM achieves the high levels of system reliability that is expected by our companies and other stakeholders, and desired by the Board, the Central Suppliers Coalition will support a CP filing at FERC if the following critical components are included:

- A multi-year pricing mechanism with limited volatility risk on the downside;
- Transitional auctions for Delivery Years 2016/17 and 2017/18, with prices uncapped to Net CONE;
- A penalty structure based on market revenues rather than Net CONE, or in the alternative, maximum and hourly penalty caps and the allocation of penalties to over-performing suppliers, similar to ISO-NE’s approach.

With the inclusion of these three critically important components, we believe that PJM will achieve the proper risk/reward balance in RPM. The inclusion of these three critical components will provide the necessary financial signals for re-investment and ultimately recovery of those investments which is an imperative for the necessary capital to be authorized to improve the unit performance to avoid the proposed higher penalties. With these three critical components, we urge the Board to quickly move forward with the proposal. Without inclusion of these three critical components, however, the Central Suppliers Coalition will oppose the adoption of CP, because we believe that risks without rewards will only accelerate the premature retirement of units that the PJM system needs to provide necessary reliability during the system peaks.

The Central Suppliers Coalition has worked closely with PJM Staff to reach consensus on elements of a program that will meet the market objectives of reliability and revenue adequacy while reducing volatility and providing competitive pricing signals. To that end, the Central Suppliers Coalition believes that the Updated Proposal contains several significant improvements over PJM’s initial proposal introducing CP. Yet various elements remain that, as currently constructed, may have the opposite effect of what is intended. The Central Suppliers Coalition positions are summarized below, and discussed in greater detail in the following pages.
EXECUTIVE SUMMARY

- **Investment Recovery and Multi-Year Price Signal.** PJM’s proposed pricing mechanism designed to reduce volatility and provide multi-year investment signals is necessary to ensure that capital is invested in projects that will ensure high levels of unit reliability.

- **Transition Auctions.** Supplemental CP Auctions for the 2016/17 and 2017/18 planning years are critical to ensure system reliability for these interim years and to provide incentives to generators to make timely investment to ensure future reliability.

- **Hourly Penalties.** PJM’s estimate of 700 annual hours for weather alerts as a basis for the hourly penalty mechanism is far too high. The penalty mechanism should be based on hours of actual shortage pricing conditions, and the penalty should be calculated based on the capacity market clearing prices rather than Net CONE.

- **Maximum Penalties.** The maximum penalty provisions based on Net CONE will be punitive in years when the capacity clearing prices could be well below Net CONE. The maximum penalties should also be based on 1.5x RPM Capacity Clearing Prices rather than 1.5x Net CONE.

- **Must-Offer Capacity Performance.** Units which have to make additional investment to qualify as CP should not be forced to offer into the initial Supplemental CP Auction. An orderly transition to 100% CP should be managed by PJM.

- **Offer Caps.** The ability to offer up to Net CONE without mitigation will encourage unit owners to develop accurate offers based on their going forward costs. This should allow units to recover long run costs rather than one year of costs.

- **Demand Response.** PJM needs to clarify that demand response products are not supply side products and must be appropriately measured and verified and, as utilized in RPM, cannot inappropriately suppress the RPM clearing price in future auctions.

DISCUSSION

**Investment Recovery and Multi-Year Pricing Mechanism**

To achieve the price certainty benefit of a multi-year auction commitment, a downward limit should be placed on the year-over-year change in RPM auction clearing prices. This “persistence pricing mechanism” would improve multi-year price certainty without the complexity and credit risk issues related to a multi-year auction structure. PJM proposes to incorporate such a mechanism in clearing the CP auctions. The Central Suppliers Coalition strongly believes that these proposed protections against unwarranted downward market price movements are necessary to ensure reliability and send appropriate market signals with or without the adoption of CP.

The Central Suppliers Coalition initially proposed a minimum offer price equal to 60% of Net CONE to ensure that prices for the CP product would clear at just and reasonable levels, provide
a minimal level of investment recovery, and send appropriate price signals. A multi-year pricing mechanism can accomplish the same goals if RPM prices clear near Net CONE, and year over year, the price cannot fall more than 5%. Combined with the proposed transitional auctions, these two changes will significantly improve the revenue side of the equation.

On page 14 of the Updated Proposal, PJM states that “a limit could be placed on the percentage price change year-over-year between RPM auctions.” If such a downward limit were set at 5%, the Central Suppliers Coalition believes this will reduce the inappropriate administrative volatility that we have seen in the auction since its inception, where prices in the Rest of Market region have cleared as high as $174/MW-day and as low as $16/MW-day within a two-year time span. We continue to emphasize the need for reduced volatility because of the long-term investment decisions that are required for both new and existing units.

A persistence pricing mechanism still leaves uncertainty about the initial clearing price for CP starting in the 2018/19 Delivery Year. The Central Suppliers Coalition argued for a minimum offer price in our initial comments, and believes that a reasonable minimum offer price for the 2018/19 Delivery Year would be Net CONE. PJM has stated that an offer cap (not a floor) set at 60% of Net CONE will be in place for this first Supplemental CP auction. The Central Suppliers Coalition does not agree that the proposed caps during the transition period provide sufficient revenue adequacy, and requests that PJM set the offer cap for the Supplemental CP auctions at Net CONE.

To summarize one of our largest concerns, the ability to make additional investments in existing resources to meet the requirements of CP hinges on a reasonable opportunity to recover and earn a return on those investments. Without a multi-year pricing mechanism, it is unlikely that the necessary investments will be made as no entity can afford to make investments where the recovery of investments and the associated returns are uncertain.

Supplemental Capacity Performance Auctions during the Transition Period

The Updated Proposal outlines a transition mechanism that is intended to improve reliability during the next three years. The Central Suppliers Coalition emphasizes that a transition mechanism is critical to any success of the Capacity Performance plan, and encourages PJM Staff to recommend a transition plan to the PJM Board. The Board should adopt a transition plan for the following reasons.

First, a transition mechanism will provide desperately needed revenues to the CP units that need to start investing now to meet the performance metrics for the 2018/19 and later Delivery Years. Much of the fossil fleet in PJM currently has a forced outage rate of greater than 10%, and significant investment is needed immediately to reduce that forced outage rate. Second, this approach will immediately establish a transitional performance metric.

Although PJM has proposed to conduct a Supplemental CP Auction for 2016/17 and 2017/18, the plan for 2015/16 seems to simply be throw more MWs at the winter period in the hope that enough will show up. The Central Suppliers Coalition does not see that as a viable approach to encouraging reliability in this most critical period following significant MATS-related unit retirements in June 2015. We encourage PJM to adopt a transitional approach to 2015/16 that
provides an immediate source of revenue that allows for the recovery of firm fuel transportation costs and incremental improvements that will otherwise not be made in the near term.

Regarding the 2016/17 and 2017/18 Supplemental CP Auctions, the Central Suppliers Coalition agrees with PJM that there is a need to secure reliability for these years, and that additional investment and improvement in performance will take time. This appears to be why PJM suggested both a cap on the clearing price and a lower penalty structure compared to the recommendation for 2018/19. The Central Suppliers Coalition believes the cap at 50% and 60% of Net CONE for 2016/17 and 2017/18, respectively, are too low. Investments are needed now for continued reliability in the future. As PJM has acknowledged (and the IMM has confirmed) capacity clearing prices over the last several years have been artificially suppressed by speculative bidding, sub-optimal capacity products, and artificial adjustments to the VRR curve. The Supplemental CP Auctions should be allowed to clear uncapped up to Net CONE to partially address the revenue shortfalls experienced by existing generators since the inception of RPM.

Finally, the question of cost responsibility and cost recovery should be addressed during the transition period. Specifically, given that the CP product is being procured to ensure greater reliability for a period for which the Base Residual Auctions have been held, it is appropriate to align the incremental cost of the CP product with the reliability benefits to the system or to the grid. Accordingly, the Central Suppliers Coalition suggests that since the grid will benefit by virtue of the increased reliability during the transition period, it is appropriate to allocate the incremental costs on the basis of the improved reliability to the grid. One method would be to allocate the costs in the same manner in which the costs for another grid reliability product are allocated. Specifically, allocate the incremental cost of the CP product during the transition period to transmission customers in the same way in which Reactive Service Costs are allocated and charged. By increasing system security and providing operational certainty for future Delivery Years, the Capacity Performance product would provide reliability benefits similar to Reactive Power Service. The Central Suppliers Coalition suggests that PJM and stakeholders should explore other mechanisms that may be available that would enable a smooth transition for all market participants.

**Hourly Penalties**

PJM’s proposed penalty structure, both for the hourly penalties during Hot/Cold Weather alerts and the Maximum Stop Loss provisions is unacceptable to the Central Suppliers Coalition. Both provisions use algorithms based on Net CONE rather than market clearing prices. Although we understand PJM’s objective for creating proper incentives to maintain the integrity of the CP offers, using Net CONE creates the likelihood of significant mismatches between the amount of penalties assessed and revenues earned in the auction. Specifically, if the auction were to clear at $16/MW-day again, a generation owner could be subject to hourly penalties based on approximately $350/MWH and an annual cap based on 1.5 x $350/MW-day Net CONE value.

In the Updated Proposal, PJM recommended hourly penalties based on an algorithm that equals Net CONE x 365 days / 350 hours. This equates to approximately $350/MWH for all Hot/Cold weather alert hours. This means that a unit that cleared at $59/MW-day (the 2016/17 clearing price) would lose the equivalent of 71 days of revenue for a single 12-hour tube leak that might
happen in the first day of a Hot/Cold weather week.\(^2\) Five outage days would almost eliminate the unit’s entire annual capacity revenue.\(^3\) After eight days the unit would reach the cap and, from a capacity revenue standpoint, have no incentive whatsoever to perform for the rest of the year.

No amount of additional capital investment can prevent unplanned incidents like a tube leak in a steam boiler. And while a unit that earned close to $350/MW-day may be able to absorb the Updated Proposal’s penalty provisions without creating huge financial losses, these penalties combined with a $59/MW-day capacity price would put certain developers out of business and may actually create disincentives for existing generation to stay online. The current penalty structure will also cause premature retirements, hurting reliability in the long run and causing more expensive new units with higher energy costs to replace the less expensive existing units.

If PJM goes forward with hourly penalties during Hot/Cold Weather alerts (which PJM estimates to be 700 hours annually) the penalties should be based on the capacity clearing price, not Net CONE. Using the algorithm in PJM’s Updated Proposal with the $120/MW-day clearing price for 2017/18, the hourly penalty would be a more manageable $125/MWH.\(^4\)

ISO New England (“ISO-NE”) has adopted a capacity performance proposal that applies penalties for non-performance just during the shortage hours. ISO-NE expects these penalties to apply during approximately 20-25 hours per year, significantly below the 700 hours per year that PJM proposes. The ISO-NE penalty structure is based on a lower total number of hours, and it does not have a two-tiered additive penalty structure. ISO-NE also utilizes the penalties collected to provide incentives to over-performing generation and other resources that deliver energy in time of system shortages. Again this provides both additional incentives and improved system reliability. The ISO-NE penalty structure has many positive attributes, but we see no need follow the ISO-NE escalation of penalties unless PJM energy market prices also increase.

- **Comparison of ISO-NE and PJM Penalty Structure:**
  
  - Under PJM’s proposal, if a unit is out for 10% of the 700 Hot/Cold Weather Alert hours (not an unreasonable assumption), the potential penalty for a 1000MW unit would be 1000MWs x 10% x 700 hours x approximately $300/MWH depending on Net CONE values. This equates to $21,000 per MW, or $21M of penalties for a single unit. In addition if this unit were out during 10% of the expected 20-25 hours of Shortage events, the penalties would be 1000MWs x 10% x 20 hours x $2700/MWH = $5.4M.

\(^2\) $350 \times 12 \text{ hours} / $59 = 71 \text{ days.  

\(^3\) One day at 12 hours = 71 days of capacity revenue, 5 days would equal 355 days of revenue and 8 days would exceed the 1.5x Net CONE annual cap: Annual cap = $59 \times 365 \times 1.5 = $32,302; 8 \text{ days} \times $350 \times 12 = $33,600.  

\(^4\) $120 \times 365 / 350
Under the ISO-NE model, if a unit is out for 10% of the 25 Shortage hours in New England, the potential penalty for a 1000MW unit would be 1000MWs x 10% x 25 hours x $5400/MWH = $13.5M compared to $21M (plus up to another $5.4M in shortage conditions) for PJM.

PJM’s stated purpose for the penalties—to incent suppliers to meet their obligations—must be balanced with the equally important goal of improving revenue adequacy to maintain fuel diversity in the region. Suppliers already have strong incentives to meet their obligations to deliver energy during peak hours; they incur both lost opportunity costs and replacement costs at real-time energy prices to replace the energy not delivered from the day-ahead schedule. On the other hand, the RPM has never produced revenue adequacy for the vast majority of generators in PJM. The penalties proposed by PJM simply pose too great a risk that suppliers’ revenues will be significantly reduced further, with uncertain upside. Again we urge PJM to keep the risks and rewards in balance in proposing any new rules.

**Maximum Penalties -- Stop Loss Provision**

The daily cap in the Updated Proposal based on 12 hours of outage is a good start, but the Central Suppliers Coalition would also like to see a monthly cap on penalties as opposed to the single event cap. Single event caps are helpful for certain units (e.g. nuclear) which typically have long forced outage times whenever they have an unplanned event. However, for most of the PJM fleet, it is possible that a unit could experience two major outages in a month (despite additional investment) and still suffer irreparable financial harm from the penalty caps as proposed.

A monthly cap on penalties for all units, not just for single event outages, has been adopted in ISO-NE. ISO-NE’s penalty structure is not based on the clearing price, but it provides some assurance that: a) a unit owner will not go bankrupt due to one month of bad experience; and b) the unit owner will continue to perform even if the forced outages occur in the early part of the measurement period.

There are similar risks associated with the proposed annual penalty cap. The Coalition does not believe PJM improved the stop loss provisions by changing from an initial proposal of 2.5 x Clearing Price, to 1.5 x Net CONE. In fact, the mismatch could even be greater. Again going to the $59/MW-day example, if Net CONE = $350/MW-day, the stop loss mechanism would be approximately $190,000/MW-year. At $59/MW-day, the annual revenue would be $21,535/MW-year. The losses could be 8.8 x the annual revenue in this scenario, so for a 500MW unit, that means a potential loss of $85M in one year. Again, a 1.5 x Clearing Price stop loss provision would adequately balance incentive and risk.

Just as described above with the hourly penalty assessments, the Coalition believes ISO-NE’s

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5 $1.5 x 365 days x $350/MW-day = $191,625.
6 $59/MW-day x 365 days = $21,535.
7 $(191,625 - 21,535) x 500$
maximum annual penalty is significantly better than PJM’s proposal. ISO-NE has both a monthly stop loss provision and an annual stop loss provision. The monthly stop loss is based on 1.6 x Net CONE in New England. 1.6 x Net CONE in New England is approximately $560/MW-day. Therefore a monthly stop loss in New England would be approximately $16,800 per MW, or $16.8M for a 1000MW unit. Further, and perhaps more importantly, the annual stop loss calculation is 3 months of the monthly stop loss. This means that the maximum annual penalty provision for a unit in ISO-NE is 3 x $16,800, or $50,400 per MW, or $50.4M for a 1000MW unit. This compares to PJM’s annual stop loss of 1.5 x Net CONE x 365 days x $300/MW-day (estimate) = $164,250 per MW, or $164.2M for a 1000MW unit.

- PJM annual stop loss = $164,250 per MW
- ISO-NE annual stop loss = $50,400 per MW

Also consistent with the ISO-NE methodology, the Central Suppliers Coalition suggests that revenue re-allocations due to performance during events should be shared within the generation supply portfolio that served that load during extreme events. This method leaves load prices stable, while providing an additional, “free” incentive to suppliers to perform.

Therefore, with both the Hourly Penalty calculations and annual maximum penalty calculations, the Central Suppliers Coalition believes that PJM should either base the penalties on the clearing price or adopt the ISO-NE structure for penalty calculations. Balance is critical: the penalties need to encourage improved unit performance and appropriate supplier behavior, yet not be so large as to force bankruptcies or premature unit retirements due to routine unit outages.

**Must-Offer Requirement**

PJM’s Updated Proposal includes a must-offer requirement for units that meet the CP criteria. The Central Suppliers Coalition recognizes the market power concerns associated with bifurcated offers, and for this reason among others, PJM should move towards a single capacity product in an expeditious and orderly manner.

PJM should allow suppliers to choose which capacity products they will offer into the RPM; there should not be a must-offer requirement for the CP product. Owners or operators have the most experience with a resource and the best information available about the resource’s current and projected capability and performance. A supplier should have the ability to determine whether it is able to meet the requirements of a particular capacity product, the risks and costs of failing to meet those requirements and, as PJM states, which capacity product will allow the supplier to best maximize revenues. Given uncertainty about how the rules will actually both penalize and compensate a resource, a supplier should not be required to offer a product when it believes that the costs and risks of providing that particular product will outweigh the revenues such that it cannot receive an adequate return on the required investment. Imposing such a requirement could result in additional premature retirements of units that otherwise are economic, but for which the risks or costs associated with the CP product outweigh the expected benefits.
Offer Caps

The Central Suppliers Coalition supports the Updated Proposal’s recommendation to allow units to offer up to Net CONE without mitigation. The proposal will encourage unit owners to look critically at going-forward costs and penalty risks and use these cost estimates to submit capacity offers reflective of long run costs. Despite assurances from both PJM staff and the IMM, the Central Suppliers Coalition still have concerns that mitigation reforms may not improve existing offer risk. Today, most participants offer at zero because they are unwilling to risk not clearing with an offer that actually reflects costs. This problem of a single year price for a multi-year commitment leads to inappropriate price formation. This same problem could occur with CP offering behavior except that it may be caused by possible enforcement risk associated with offering at or near Net CONE. The importance of restoring rational offer behavior is apparent, as PJM has reported that 85% of offers in earlier auctions have been at zero. This is indicative of a flawed market design. Although the ability to offer up to Net CONE will not fix all of the problems with the existing capacity market, it should promote a more robust market structure. The change to allow offers up to Net CONE also permits most units to include an appropriate risk premium in their offer. Those units that need to incorporate a premium that would put their offer above Net CONE, can work with the IMM on a one-off basis.

Demand Response

The Updated Proposal leaves open many questions about how demand response will be treated in future capacity auctions. The Court of Appeals decision in EPSA is binding, even pending any appeal to the Supreme Court, and clearly calls into question whether demand response can participate in the organized RTO markets. PJM has provided some clarification on this issue over the last several weeks, but the Central Suppliers Coalition remains concerned that the Updated Proposal still seems to allow inferior capacity products – resources that are not available year-round, do not have daily energy offer requirements, and do not have similar performance requirements as generators – both to qualify as CP products and to set wholesale prices in the PJM capacity market. Participation of these inferior capacity products in the RPM has consistently resulted in revenue inadequacy for the suppliers actually producing electricity.

Even if, as PJM has suggested, demand response is reflected as an adjustment to the demand curve, it is unclear how PJM will handle the criteria for reflecting the demand response products as an adjustment to the existing demand response mechanism. If demand response is allowed to be reflected as a downward adjustment to the VRR curve under the same criteria as today the market will not realize any benefit. As PJM has also recognized, the questions surrounding the participation of demand response in the organized markets will be the subject of continuing litigation. The Central Suppliers Coalition suggest that PJM can easily remove this uncertainty from the Updated Proposal by excluding demand response from the CP program altogether.
CONCLUSION

The Central Suppliers Coalition endorses the concept of the Capacity Performance Updated Proposal. We believe it provides an opportunity for PJM to assure reliability in the future while providing additional revenue to generation resources to make the necessary capital investments to improve reliability. However, the Central Suppliers Coalition believes that in order to achieve these objectives, PJM must file tariff changes at FERC to:

- Implement the proposed multi-year pricing mechanism with limited volatility risk on the downside;
- Implement the proposed transition mechanism and raise the price cap for the interim years to Net CONE;
- Propose an hourly and maximum penalty structure that either a) is based off of the clearing price or b) adopts the ISO-NE approach.

The Central Suppliers Coalition appreciates the opportunity to present these concepts both in writing and at the November 4 Meeting of the Enhanced Liaison Committee.