137 FERC ¶ 61,108
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Philip D. Moeller, John R. Norris,
and Cheryl A. LaFleur.

PJM Interconnection, L.L.C. Docket No. ER11-3322-000

ORDER CONDITIONALLY ACCEPTING FILING
AFTER TECHNICAL CONFERENCE

(Issued November 4, 2011)

1. On April 7, 2011, PJM Interconnection, L.L.C. (PJM) submitted a filing in the captioned docket proposing to clarify, in its tariffs, the capacity values (i.e., the performance measurement standards) applicable to load reductions made in the delivery year by demand response (DR) resources that have offered and cleared in PJM's capacity market.[1] PJM proposed that, for a load reduction to be recognized as having satisfied its capacity commitment, the load reduction must result in a metered load that is less than the customer's Peak Load Contribution (PLC).[2] PJM states that it is critical that these changes be made effective in order to ensure that consumers in the PJM region will pay only for capacity reductions that are actually delivered to PJM and that the amounts of capacity PJM procures through RPM will continue to be adequate to maintain reliability in the PJM region.

2. In an order issued June 3, 2011, the Commission accepted and suspended PJM's filing for a five month period to become effective November 7, 2011, subject to refund, and the outcome of a technical conference.[3] The technical conference was convened by

[1] The tariffs to which these revisions apply are PJM's Open Access Transmission Tariff (OATT), the Amended and Restated Operating Agreement (Operating Agreement) and the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region (Reliability Assurance Agreement).

[2] In its filing, PJM states that the PLC is the average of the end-user's actual load during the five coincident peak hours of the preceding delivery year. *See* PJM Manual 19 at section 4.4 (Load Forecasting and Analysis - Peak Load Allocation (5CP)). Located at: http://www.pjm.com/~/media/documents/manuals/m19.ashx.

[3] *PJM Interconnection, L.L.C.*, 135 FERC ¶ 61,212 (2011) (June 3 Order).

Commission Staff on July 29, 2011. Following the technical conference, interested parties submitted written comments. Upon our further review of the record, as supplemented, we accept PJM's filing, effective November 7, 2011, subject to conditions.

I. Background

A. Market Activity Giving Rise to PJM's Filing

3. On February 4, 2011, PJM and Monitoring Analytics, LLC, PJM's independent market monitor (IMM), issued a Statement of Policy (Joint Statement) explaining that certain customers - specifically, those customers registered as capacity resources in the PJM Emergency Load Response Program[4] and using the PJM's Guaranteed Load Drop (GLD)[5] measurement and verification option in the delivery year - could show substantial over compliance for capacity commitments by applying towards that commitment load reductions that were used by the customer to manage its PLC, i.e., "peak shave."[6] PJM expressed its concern that Curtailment Service Providers (CSPs)[7] were compiling customer portfolios that allow for an over-performing customer to offset an under-performing resource in the delivery year, even if the over-performing customer's load reduction exceeds the customer's capacity auction nomination limit (i.e., the PLC). The Joint Statement asserted that such practices should not, and cannot, be treated as "performance" under the PJM Emergency Load Response Program and that future occurrences of this behavior could result in referrals to the Commission's Office of Enforcement.

4. In response, EnerNOC, Inc. (EnerNOC) filed a petition for a declaratory order, in Docket No. EL11-23-000, requesting that the Commission determine that EnerNOC's practices, as a CSP, were permissible, presented no dangers to PJM's markets, and thus

[4] PJM OATT, Attachment K-Appendix, PJM Emergency Load Response Program.

[5] GLD is "[l]oad management achieved by a customer reducing its load by a pre-determined amount . . . upon notification from the Provider's market operations center or its agent." *Id.* at Attachment DD-1 at section H.

[6] PJM explained that a customer may have an incentive to reduce consumption during peak hours either through a retail rate contract that is directly linked to the wholesale market, as is the case for many large customers, or through an LSE program. In either case, stated PJM, the customer may actively reduce its peak consumption, and thus its contribution to the LSE's PLC and wholesale capacity obligation for the following year, in response to an incentive independent of the PJM Emergency Load Response Programs.

[7] *See* PJM OATT, Attachment K-Appendix at section 1.3.1A.001 (defining a CSP as a "Member or a Special Member [who, acting] on behalf of itself or one or more other Members or non-Members, participates in the PJM Interchange Energy Market by causing a reduction in demand.").

warranted clarification by the Commission that EnerNOC may continue to register customers in PJM's DR program and claim the load reductions it is presently claiming without the threat of a Commission action seeking to enforce or apply the Joint Statement.

5. In *EnerNOC, Inc.*,[8] the Commission noted that the parties were in general agreement that PJM's tariff could be clearer on the issue of whether a reduction exceeding an end-use customer's PLC can be counted by a CSP as an over-performance for the purpose of offsetting an under-performing resource. The Commission, however, declined to recognize the Joint Statement as a binding clarification. The Commission noted that a stakeholder proceeding had been instituted to consider this issue and that the Commission's findings were being issued without prejudice to any future filing on this issue.[9] PJM's filing, in this proceeding, was made a month later, on April 7, 2011.

B. DR Participation in PJM's Capacity Market

6. Under PJM's Reliability Pricing Model (RPM) protocols, PJM conducts forward auctions to secure capacity for a future delivery year, thereby allowing both existing and proposed generation, DR and energy efficiency resources to compete to meet the region's installed capacity needs to cover forecasted peak load plus reserves.[10] In RPM, PJM uses the RTO peak load forecast and the unforced reserve margin to establish the PJM region's reliability requirement for the capacity auctions.[11] The RTO peak load forecast is based on

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[8] *EnerNOC Inc.*, 134 FERC ¶ 61,158 (2011) (EnerNOC Declaratory Order).

[9] EnerNOC Declaratory Order, 134 FERC ¶ 61,158 at P 20.

[10] Under RPM, PJM conducts a base residual auction three years ahead of each delivery year and also conducts three scheduled incremental auctions during the three-year period between the base residual auction and the delivery year. For example for the 2014-15 delivery year, the base residual auction was held in May 2011 and the first, second and third incremental auctions will be held in September 2012, July 2013, and February 2014, respectively.

[11] The PJM Region Reliability Requirement is defined, for purposes of the base residual auction, as the Forecast Pool Requirement multiplied by the Preliminary PJM Region Peak Load Forecast, less the sum of all Preliminary Unforced Capacity Obligations of Fixed Resource Requirement (FRR) Entities in the PJM Region. PJM Tariff, Attachment DD at section 2.55. The Forecast Pool Requirement is defined as the amount equal to one plus the unforced reserve margin. PJM RAA, Article 1 at section 1.26. The PJM Reserve Requirement is defined to be the level of installed reserves needed to maintain the desired reliability index of ten years, on average, per occurrence (loss of load expectation of one occurrence every ten years) after emergency procedures to invoke load management. PJM Manual 20, section 1.4 (PJM Resource Adequacy Analysis – PJM Installed Reserve Margin) at 13. Located at:

load during the coincident peak day, which is also one of the five days that serve as the foundation for customer PLCs.[12] Further, to determine its capacity needs for a given delivery year, PJM continually adjusts its load forecasts through the third incremental auction, which is also when the PLCs for the given delivery year are finalized.[13] The PLC also acts as a limit to the amount of Capacity DR that is added back to unrestricted peak load that is used in the RTO peak load forecast.[14]

7. In RPM, DR resources can be offered for sale or designated as self-supply in capacity auctions in order to partially or wholly offset the amounts payable by LSEs for capacity obligations.[15] DR resources are permitted to participate in the capacity auctions as either a Demand Resource or as an Interruptible Load for Reliability (ILR) resource (collectively, Capacity DR).[16] RPM compensates cleared Capacity DR in the same manner as generation that clears in an auction, given that both are procured to meet PJM's expected peak demand.

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http://www.pjm.com/~/media/documents/manuals/m20.ashx.

[12] PJM Manual 19 at 11. To obtain the RTO peak forecast, the solution for each of the zonal coincident peak models are summed by day and weather scenario to obtain the RTO peak for the day. For the RTO, a distribution of the seasonal RTO peak versus weather scenario is developed. From this distribution, the median result is used as the base forecast.

[13] *See* PJM Post-Technical Conference Comments at 15.

[14] PJM Manual 19, Attachment A at 23: "If there is an event and the metered load (MW) * Loss Factor is less than or equal to the current PLC, then the add back which will be used in the determination of the subsequent delivery year's retail PLC and the determination of the unrestricted peak load is the lesser of: (i) the nominated Load Management (MW) on the existing emergency registration or (ii) the current delivery year PLC (MW) minus the metered load (MW) * Loss Factor."

[15] Capacity obligations are assessed to LSEs based on the obligation peak load. *See* Reliability Assurance Agreement, Article 7 at section 7.2 (Responsibility to Pay Locational Reliability Charge). The obligation peak load is the daily summation of the weather-adjusted coincident summer peak, last preceding the delivery year, of the end-users in a zone. *See* Reliability Assurance Agreement at Schedule 8 (Determination of Unforced Capacity Obligations).

[16] A Demand Resource is designed to provide a demand reduction or load control capability that is cleared in an RPM auction, or which is otherwise committed through a load serving entities' long-term capacity plan. *See* PJM Reliability Assurance Agreement at section 1.13. For delivery years through May 31, 2012, resources are eligible to be certified as an ILR resource, which is a resource with a demonstrated capacity to provide a reduction

8. Once committed in an RPM auction, Capacity DR will be required to reduce load, in the applicable delivery year, if requested to do so by PJM, following the declaration of a Maximum Emergency Generation action, unless the resource has already reduced its load pursuant to its participation in PJM's economic load response program.[17] Performance in the delivery year may be carried out pursuant to one of three verification options: (i) Direct Load Control (DLC);[18] (ii) Firm Service Level (FSL);[19] or (iii) GLD.

9. In addition to LSE participation in the RPM capacity market, participation is also permitted on an aggregated basis through a Demand Resource Provider,[20] such as a CSP. RPM rules provide that the maximum credit nominated for an FSL or GLD resource in PJM's capacity auctions shall not exceed the customer's PLC value.[21] As such, a CSP with FSL and/or GLD customers in its portfolio may not commit, in a capacity auction, to provide capacity at a level above the aggregate PLC of customers in its portfolio.

10. Under PJM's tariff, compliance in the delivery year for GLD participants is determined "by comparing actual load dropped during the event to the nominated amount of load drop."[22] To measure event compliance for GLD customers in the delivery year, CSPs

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in demand or to otherwise control load and that is certified by PJM no later than three months prior to the start of a delivery year. PJM OATT, Attachment DD at section 1.42 and Attachment DD-1 at section A.

[17] *Id.* at Attachment K-Appendix, PJM Emergency Load Response Program.

[18] DLC is "[l]oad management that is initiated directly by the Provider's market operations center or its agent, employing a communication signal to cycle equipment[.]" *Id.* at Attachment DD-1 at section H.

[19] FSL is "[l]oad management achieved by a customer reducing its load to a pre-determined level . . . upon notification from the Provider's market operations center or its agent." *Id.*

[20] A Demand Resource Provider is a PJM member that has the capability to reduce load, or that aggregates customers capable of reducing load. *Id.* at Attachment DD at section 2.22.

[21] *See id.* at Attachment DD-1 at section J. Nominations for DLC resources are not restricted to a PLC value. Rather, Section J of Attachment DD-1 provides the following: "The Nominated Value for a [DLC] program will be based on load research and customer subscription. The maximum value of the program is equal to the approved per-participant load reduction multiplied by the number of active participants, adjusted for system losses. The per-participant impact is to be estimated at long-term average local weather conditions at the time of the summer peak."

submit actual loads and comparison loads for the hours in which the resources were called to provide capacity. A variety of options are available to estimate comparison loads, such as comparable day, same day, customer baseline (CBL), regression analysis, and generation output.[23] The CBL, for instance, is commonly used to calculate load drops for PJM economic demand resources and is the representation of what the end-use customer's energy consumption would have been in a relevant hour had PJM not dispatched it under emergency conditions during that hour.[24]

C. PJM's April 7, 2010 Filing

11. To clarify the measurement and verification rules first addressed by PJM in the Joint Statement,[25] PJM proposed, in this proceeding, that capacity market load reductions made in the delivery year be measured and credited relative to: (i) the lower of the customer's PLC or its comparison load, minus the metered load, for GLD customers; and (ii) the PLC minus the metered load, for FSL customers. PJM provides that the comparison load is used to best represent what the load would have been if PJM did not declare a Load Management event or the CSP did not initiate a test as outlined in the PJM Manuals.

12. PJM clarified in its filing that its proposal does not affect the energy market compensation prescribed for CSPs under the Commission's recently promulgated DR compensation rule.[26] PJM stated that its revisions do not change in any manner the rules for offering, clearing, and obtaining payment for DR resources that participate in PJM's energy markets. According to PJM, all such resources will continue to receive compensation for all load reductions offered and cleared in the energy markets. PJM stated that its proposal

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[22] *Id.* at section L. PJM OATT, Attachment DD-1, 2.0.1, http://etariff.ferc.gov/TariffSectionDetails.aspx?tid=1731&sid=104124.

[23] PJM Manual 19, Attachment A (Load Drop Estimate Guidelines) at 24.

[24] *See* PJM Manual 11, section 10 at 114 (Energy and Ancillary Services Market Operations – Overview of the Demand Resource Participation) ("For those CSPs that wish to measure load reductions by comparing metered load against an estimate of what metered load would have been absent the reduction, a [CBL] shall be calculated for each Demand Resource[.]"). Located at: http://www.pjm.com/~/media/documents/manuals/m11.ashx. The CBL for weekdays, for instance, is the highest four out of the five most recent highest load weekdays in the 45 calendar day period preceding the relevant load reduction event. PJM OATT, Attachment K-Appendix at section 3.3A.2 (Customer Baseline Load).

[25] *See* P 3, *supra*.

[26] PJM Filing at 2, *citing Demand Response Compensation in Organized Wholesale Energy Markets,* Order No. 745, 76 FR 16,658 (Mar. 24, 2011) FERC Stats. & Regs. ¶ 31,322.

relates only to PJM's compliance verification rules for DR resources that are offered and cleared in the capacity markets through which PJM procures capacity resources to maintain reliability by ensuring that PJM has sufficient resources, both generation and demand response, to meet the peak load of the PJM system.

13. In support of this clarification for GLD customers, PJM argued that, when CBL exceeds PLC, the CBL values should not be used as the benchmark for valuing a load reduction. PJM asserted that, while CBL is appropriate for measuring load reductions in the energy market, it is unnecessary and inappropriate to rely on such a reference value in the capacity market, given that the amount of capacity actually procured for each customer's load, i.e., the PLC, is a known variable.[27] PJM further argued that when an end-use customer using GLD reduces its load in an emergency event, it will have provided no actual reduction of its peak capacity obligation where the load drop lowers only the CBL but does not fall below PLC.

14. PJM noted that the existing practice that its filing was intended to address is made possible when a CSP uses end-use customer aggregation as a way to offset the under-performance of some customers with the over-performance of others and thus uses load reductions from a single customer in an amount that may exceed that customer's PLC (even though the PLC is the maximum limit for nominations made into PJM's capacity auctions). PJM provided that relatively few CSPs have taken advantage of the current rules' ambiguity, but that at least 1,000 MW of Capacity DR was reported in excess of PLC in 2010. PJM argued that, absent its proposed tariff clarification, additional CSPs will be encouraged to benefit from this practice. PJM added that, if this practice was permitted to continue, PJM would be threatened by a capacity shortfall (a reliability risk) and would thus be required to procure substantially more generation capacity through RPM. PJM asserted that higher RPM capacity prices would result for consumers across the PJM region.

1. Protests and Comments

15. Intervenors objected to PJM's proposed tariff revisions and/or the rationales supporting the proposed rule changes on numerous grounds, as summarized in the June 3 Order. Intervenors questioned, among other things: (i) whether PLC is the appropriate benchmark to value capacity load reductions; (ii) whether PJM's proposal preserves, or should preserve, the GLD measurement and verification option; (iii) whether PJM's exiting GLD methodology promotes inappropriate incentives; (iv) whether PJM's proposal was required to address reliability concerns; and (v) whether PJM had adequately explained its measurement practices applicable to behind-the-meter generation.[28]

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[27] PJM noted that in the energy market, by contrast, a proxy for this known variable is necessary because end-users, in theory, can consume unlimited amounts of energy at any given time and thus a hypothetical benchmark is required against which to measure real-time reductions in energy use under system emergency conditions.

2. June 3 Order

16. The June 3 Order accepted and suspended PJM's filing for a five month period, subject to refund and the outcome of a technical conference. The Commission found that disputed issues of material fact had been raised by intervenors challenging both the description and the extent of the measurement and verification problem outlined by PJM in its filing. The Commission noted, for example, that intervenors had challenged: (i) the use of a PLC benchmark to measure load reductions; (ii) whether PJM's proposal would, effectively, eliminate GLD as a viable measurement and verification option; and (iii) whether PJM's reliability concerns were valid.

17. While the Commission thus deferred ruling on the ultimate merits of PJM's proposal, the Commission agreed that efforts must be taken to ensure the integrity of PJM's capacity market by assuring that: (i) consumers pay only for capacity reductions that will actually be delivered; and (ii) Load Management resources comply with their commitments to provide such capacity. The Commission also encouraged PJM to remain vigilant in developing rules to maintain the reliable operation of its grid.[29] Finally, the Commission dismissed arguments regarding behind-the-meter generation market rules and also dismissed waivers requested by PJM in its filing.

II. Technical Conference

18. In a notice issued June 21, 2011, the Commission identified the issues to be discussed at a technical conference on July 29, 2011, in addition to those issues previously identified by the Commission in the June 3 Order.[30]

A. Notice and Post-Technical Conference Pleadings

19. The Commission's June 21 Notice asked that PJM (or any other party) provide information and data, in advance of the technical conference, addressing: (i) examples and/or details regarding how an increase in the number of aggregators reporting compliance in excess of PLC presents a threat to system reliability; (ii) whether the 1,000 MW of DR that was in excess of PLC in 2010 was concentrated in one zone or whether the DR was spread out over several zones; (iii) whether the customer reductions in 2010 (which ranged

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[28] Answers to protests were submitted on May 12, 2011, by Viridity Energy, Inc. (Viridity), on May 13, 2011, by PJM, the Demand Response Aggregator Coalition (DR Aggregators), and on May 17, 2011, by the IMM. On May 19, 2011, EnerNOC submitted an answer. These pleadings were also summarized by the Commission in the June 3 Order.

[29] June 3 Order, 135 FERC ¶ 61,212 at P 72.

[30] *PJM Interconnection, L.L.C.*, "Notice of Discussion Topics for Staff Technical Conference," Docket No. ER11-3322-000 (June 21, 2011) (June 21 Notice).

from 150 to 300 percent or more of PLC and accounted for 28 percent total GLD reductions) were associated with aggregation or individual market participants; (iv) the prevalence of PJM customers with limited reduction capability, particularly with regards to customers associated with the 48 percent of total GLD reductions that were recorded at less than or equal to 75 percent of the customer's PLCs, as detailed in the 2010 State of the Market Report for PJM; (v) the prevalence of peak-shaving activity in the PJM market; and (vi) whether it is possible to distinguish between peak-shaving activity and changes in peak demand over time.[31] On July 11, 2011, PJM submitted its responses.

20. On July 29, 2011, as noted above, Commission staff convened the technical conference, with representatives from the following entities participating as panelists: PJM; EnerNOC; IMM; American Municipal Power Inc. (AMP); Comverge, Inc. (Comverge); Johnson Controls, Inc. (EnergyConnect); Energy Curtailment Specialists (ECS); PJM Industrial Customer Coalition (Industrial Customers); Viridity; and Constellation Energy (Constellation). Position papers and/or supporting documents were submitted for the record at, or prior to the technical conference, by PJM; ECS; the Maryland Public Service Commission; Comverge; Constellation; EnerNOC; Industrial Customers; and Viridity. A transcript of the proceedings was also made a part of the record.

21. Post-Technical Conference Comments were submitted on, or before August 15, 2011, by PJM; EnerNOC; IMM; P3; American Electric Power Service Corp. (AEP); AMP; Comverge; Constellation; Electric Power Supply Association; EnergyConnect; ECS; Hess Corporation (Hess); New Jersey Board of Public Utilities (New Jersey Board); Public Service Commission of the District of Columbia (District of Columbia Commission); and Nucor and Steel Dynamics (Steel Producers). PJM filed a response to EnerNOC's Post-Technical Conference Comments on September 9, 2011. On September 20, 2011, EnerNOC filed a response to PJM's September 9, 2011 pleading.

B. Issues Discussed in Post-Technical Conference Pleadings

22. PJM, the IMM, state commissions, and some CSPs agree that if a Capacity DR resource does not reduce its demand to less than PLC during an emergency, then PJM will be at risk of violating reliability criteria.[32] The Maryland Public Service Commission and New Jersey Board agree with PJM that the PLC is an appropriate baseline metric for Capacity DR performance because it is the best available proxy for the amount of capacity

[31] A supplemental notice was issued July 22, 2011 establishing an agenda for the technical conference, including a designation of panel topics and panelists.

[32] PJM Post-Technical Conference Comment at 4 and 14; *see also* Constellation Post-Technical Conference Comment at 6, *citing* Tr. Bresler 8-9; IMM Post-Technical Conference Comment at 4-5; NJ BPU Post-Technical Conference Comment at 2; District of Columbia Commission Post-Technical Conference Comment at 6; EnergyConnect Post-Technical Conference Comment at 2.

that PJM procures for the customer's use on the peak day of the year. PJM, the IMM, P3, and Viridity also argue that the measurement and verification of resources must be separate for capacity and energy market products. Finally, the New Jersey Board and some CSPs agree with PJM that its proposal will not eviscerate the GLD approach, undermine DR aggregation, or harm the development of Annual DR[33] resources in PJM.[34]

23. In contrast, EnerNOC states that PJM has not provided any credible evidence or analysis that not accepting the PLC baseline will result in reliability issues. EnerNOC states that capacity is nothing more than the ability to supply energy. Comverge and EnerNOC assert that the baseline for measuring a customer's load drop in response to an emergency event should be the best prediction of a customer's energy usage had an event not been called. Comverge and AMP are also concerned that the use of a static PLC baseline does not account for load variability between seasons or from year-to-year. In addition, some CSPs, including ECS, Hess, EnerNOC, and Comverge, believe that PJM's proposal effectively eliminates the GLD baseline methodology.

1. Whether PJM's Proposed Clarifications are Required to Satisfy a Reliability Need

a. PJM's Position

24. PJM bases the need for its proposed tariff clarifications on reliability concerns. PJM states that under its RPM rules, it seeks to procure resources in an amount equal to the resources that it requires (a calculation based on forecast peak load plus reserves). PJM states that, as such, the performance of a resource that commits to provide capacity must equal the capacity that PJM has procured from that resource.

25. PJM notes that, currently, certain CSPs are claiming performance as Capacity DR for consumption in excess of the reduced peak-hour loads to which they committed that is *not* associated with forecast uncertainty and not part of the unanticipated consumption in excess of the forecasted load that is accounted for in the reserve margin. PJM further states that under its current rules, end users' reduced consumption on peak days through peak shaving is being used to lower their PLC and to claim performance as a Capacity DR resource even at consumption that exceeds PLC. PJM asserts, however, that when Capacity DR does not reduce to less than PLC during emergency dispatch, there is less capacity available to meet other customers' loads and less than the amount PJM acquired in RPM. PJM argues that, in

[33] An Annual Demand Resource (Annual DR) is available for an unlimited number of interruptions during the delivery year and is capable of maintaining each such interruption for at least a 10-hour duration. PJM Reliability Assurance Agreement at section 1.1A.

[34] PJM Post-Technical Conference Comment at 22; *see also* Constellation Post-Technical Conference Comment at 9; EnergyConnect Post-Technical Conference Comment at 6; NJ BPU Post-Technical Conference Comment at 5.

these circumstances, the system reserve margin is eroded, thus putting PJM at risk of violating reliability criteria.

26. PJM asserts that while variations in load are considered when it makes its load forecasts, a Capacity DR resource, as opposed to any other load consuming entity, has made a commitment in the RPM auction to meet the system reliability requirement, and PJM, in reliance on that commitment, has foregone purchasing other resources.

27. PJM states that its current rules allow CSPs to offset some customers' lack of performance with the "excess" performance of other end-use customers in its portfolio. PJM argues that this aggregation practice allows a CSP to claim credit for reductions that exceed the performing location's PLC (largely accomplished by CSPs contributing Capacity DR performance to peak load management), even though a single site's nomination is limited to its PLC. PJM states that this type of aggregation gives the appearance of a greater supply of capacity and undercuts the fundamental purpose of RPM: to ensure reliability by providing price signals to facilitate the development and maintenance of adequate capacity resources.

28. PJM states that its reliability problem is directly proportional to the extent to which the Capacity DR resources do not reduce their consumption to less than PLC during Load Management events. PJM states that ignoring this concern could require PJM to reexamine its reserve margin and the amount of capacity it will be obligated to procure in RPM. PJM estimates that if all CSPs had acted on the ambiguity giving rise to PJM's filing, for the 2014-15 delivery year auction, PJM would have incurred a 4,320 MW capacity shortfall. PJM argues that if aggregators are permitted to continue to report Capacity DR performance for consumption greater than PLC, PJM will be required to modify its RPM procurement policies to secure these additional MW of capacity for the 2014-15 delivery year in order to comply with required reserve margins to meet reliability criteria, at an added cost to consumers of approximately $1.8 billion per year.

29. PJM explains that a capacity resource's ability to lower its contribution to the system peak load is represented by the customer's allocated share of the forecasted load. PJM states that the most accurate, available measure of an end user's contribution to the system peak load is its PLC. Thus, PJM states that the PLC sets the maximum value that a DR resource can nominate in the capacity auction and contribute to meeting the system reliability requirement.

30. PJM explains that it has not proposed to change its rule that PLC sets the limit for capacity commitments and that the PLC is a valid basis for measuring the capability of individual end-use facilities to provide DR capacity. PJM contends that PLC is a reflection of each load's contribution to the load forecast on which capacity procurement is based. On this point, PJM asserts that the historic, metered loads that go into the calculation of customers' PLCs are the same historic, peak day loads that are the foundation of the peak load forecast on which PJM bases its RPM capacity procurement.

b. Intervenor Comments

31. Viridity and EnergyConnect concur with PJM that tariff clarifications are required in order to address the reliability needs of PJM's system. Viridity argues that a customer who has consistently reduced its consumption during system peaks, in past years, has created a reasonable expectation that its load during system peaks will be at that reduced level.

32. EnergyConnect agrees that PLC is linked to PJM's planning construct, given the operation of add-backs.[35] EnergyConnect notes that, for planning purposes, PJM determines the individual reductions reported by customers and then adds these reductions back to determine the "unrestricted peak" that would have occurred absent the reduction. EnergyConnect explains that PJM's current rules limit the individual add-backs in such a way that as long as the actual load is less than the PLC, the full add-back is not applied. EnergyConnect asserts that, as such, when a DR participant with a low PLC is also permitted to use an operational CBL that is larger than its PLC, the individual customer add-back that will be applied to the unrestricted load is understated. EnergyConnect asserts that if the artificially low unrestricted peak is not addressed, it will result in understated load forecasts and potential reliability concerns.

33. Other intervenors disagree. EnerNOC argues that reliability is founded upon the ability to meet the challenges of physical reality and that the response needed is not customer conformance to demand levels below PLC. EnerNOC asserts that PJM, in this proceeding, has failed to provide any credible evidence, or analysis, suggesting that not accepting the PLC baseline gives rise to reliability concerns. EnerNOC notes that, while it is true that unanticipated increases in aggregate load can eat into the reserve margin, the forecast PJM actually uses to anticipate loads already takes into account customer diversity, load growth, changes in usage due to weather and other factors.

34. EnerNOC asserts that PJM has failed to demonstrate that PJM relies on individual customer PLCs as the basis for forecasts and capacity procurement. EnerNOC notes that PLCs are based on usage levels over a five-hour period in the previous year, a sample which, may represent atypical usage in almost every other hour for that year. EnerNOC adds that consumption above the PLC cannot undermine the PJM planning process because the PLC is not a cap on consumption and because the planning process uses more than just peak demand to calculate the optimal reserve margin.[36]

35. EnerNOC argues that the PLC is nothing more than a cost allocation metric based on past usage that is not universally used by load serving entities even for that purpose. EnerNOC contends that, what the system plans and procures for is the aggregate of actual

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[35] *See supra* at note 14.

[36] *See also* Hess Post-Technical Conference Comments at 2.

customer loads, which is the aggregate of the expected contemporaneous customer baselines of any and all customers that happen to be consuming in any hour of a future year.

2. Defining Capacity Performance to Determine the Appropriate Baseline Metric

a. PJM's Position

36. PJM argues that its proposed tariff clarifications are required to enforce the necessary link between the capacity that DR providers commit to make available to PJM and the capacity performance of these providers during peak demand hours. PJM asserts that the defined value of Capacity DR is its ability to reduce its consumption below the amount that it contributed to the system peak load and the reliability requirement. PJM adds that because PLC represents a customer's contribution to the system peak load and is the maximum amount of capacity that a customer can nominate to reduce the system reliability requirement, only reductions in consumption below PLC should constitute capacity performance.

b. Intervenor Comments

37. EnergyConnect argues that, under the 2006 RPM Settlement, the allowance for DR participation in RPM was designed to permit customers to mitigate capacity and related costs, as linked to their PLCs, not to permit customers to offer real time reductions from a GLD.[37] The IMM and Constellation also state that customers with zero summer load and zero PLC have no obligation to purchase capacity and therefore cannot benefit by agreeing to not purchase capacity.

38. The New Jersey Board argues that if a generation resource over-performs above its commitment, it sells the over-commitment in the energy market and does not receive capacity market payments.[38] PJM states that if a generator clears RPM as a capacity resource of 100 MW and delivers 105 MW, it has over-performed from a capacity perspective, and it is paid in the energy market for the entire 105 MW it delivered, but not paid for an extra 5 MW of capacity.

39. With respect to aggregation, Viridity and the New Jersey Board state that performance for a given load reduction should not be dependent on whether a customer is or is not aggregated. Viridity further states that "aggregation" is not defined as multiple

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[37] EnergyConnect Post-Technical Conference Comment at 5-6, *citing PJM Interconnection, L.L.C.,* 117 FERC ¶ 61,331, at 31 (2006) ("RPM also preserves the current option of allowing Load Serving Entities to mitigate capacity obligations through DR solutions certified as late as three months before the delivery year.").

[38] *See also* EPSA Post-Technical Conference Comments at 8.

customers within a zone offsetting over and under performing resources; rather, aggregation is a tool that enables small customers to participate in PJM DR programs.

40. In opposition to PJM's filing, Comverge explains that the "Capacity Market is designed to ensure the adequate availability of necessary resources that can be called upon to ensure the reliability of the grid."[39] EnerNOC states that capacity is nothing more than the ability to supply energy. For support, EnerNOC cites to the D.C. Circuit Court, which noted that:

> Capacity is not electricity itself, but the ability to produce it when necessary. It amounts to a kind of call option that electricity transmitters purchase from parties – generally, generators – who can either produce more or consume less than required.[[40]]

41. Comverge asserts that the baseline for measuring a customer's load drop in response to an emergency event should be the best prediction of a customer's energy usage had an event not been called.[41] EnerNOC argues that ISO-NE uses a contemporaneous baseline without a difficulty in distinguishing between capacity and energy DR resources and without discouraging peak shaving.

42. EnerNOC states that PJM's proposal looks at DR as a demand-side resource by looking at a resource's consumption, which contrasts with the Commission's policy, as articulated in Order No. 719[42] and Order No. 745,[43] allowing DR to be treated as a supply side resource comparable to generation. ECS also argues that PJM's filing runs counter to the Commission's guidance, as set forth in Order No. 719 and Order No. 745, regarding the elimination of barriers for DR, comparability, and the role of DR during operating reserve shortages.

43. EnerNOC asserts that PLC is a bad predictor of customer usage during peaks and during emergency situations that occur during non-peak hours. EnerNOC states that the

[39] Comverge Post-Technical Conference Comments at 3, *citing* PJM Manual 18 at section 1.1.

[40] *Citing Connecticut DPUC v. FERC,* 569 F.3d. 477 (D.C. Cir. 2009).

[41] *See also* EnerNOC Post-Technical Conference Comments at 5.

[42] *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, 73 Fed. Reg. 64,100 (Oct. 28, 2008), FERC Stats. & Regs. ¶ 31,281 (2008) (Order No. 719), *order on reh'g*, Order No. 719-A, FERC Stats. & Regs. ¶ 31,292 (2009), *order on reh'g*, Order No. 719-B, 129 FERC ¶ 61,252 (2009).

[43] *Demand Response Compensation in Organized Wholesale Energy Markets*, Order No. 745, FERC Stats. & Regs. ¶ 31,322 (2011) (Order No. 745).

RPM market requires resources to respond to system emergencies, yet there is no connection between PLC and what a demand-side resource can offer the system during an emergency. EnerNOC, Steel Producers, and Comverge argue that PLC performance measures give PJM less flexibility during emergencies and decrease the incentives for load to reduce during emergencies. EnerNOC states that DR necessarily entails a "change" in

consumption from "expected" or "normal" levels,[44] but that PJM's proposal in the proceeding will allow customers who are shut down, or consuming at a level below PLC to be considered "performing," despite not having actually reduced by an amount commensurate with committed levels.[45] EnerNOC also believes that, if PJM's proposal is accepted, PJM will be forced to revise the underlying assumptions of its minimum resource requirement analysis because its assumptions about the 100 percent operational availability of DR resources in real-time will have been rendered inaccurate. EnerNOC also states that offering to pay people for consumption below PLC will encourage heavy self selection towards customers who expect their load to be down or off.

44. Comverge states that PJM's proposed revisions unduly discriminate against customers based on load shape. Comverge states that only two of the seven emergency events in the 2010-2011 delivery year occurred on system peak days.[46] EnerNOC also explains that over 60 percent of emergency dispatches have occurred in hours that were not five coincident peak hours, which serve as the basis for PLC. EnerNOC states that relying upon PLC dispatch for a year round DR resource, when PLC is based upon a snapshot of historic summer peak data will render DR nearly valueless as a tool for use during system emergencies occurring outside of summer peaks.

45. In response, Viridity notes that nearly all of the 8,760 hours of the year are completely irrelevant when analyzing the system peaks and it is the system peak for which PJM is planning and procuring capacity.

46. ECS, Hess, EnerNOC, and Comverge assert that, by requiring customers to reduce below the PLC, PJM's proposal would effectively eliminate the GLD baseline methodology.

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[44] EnerNOC Post-Technical Conference Comments at 9-10, *citing, e.g., EnergyConnect, Inc.,* 130 FERC ¶ 61,031, at P 32 (2010); *Demand Response Compensation in Organized Wholesale Energy Markets*, Order No. 745, FERC Stats. & Regs. ¶ 31,322, at P 64 (2011); *Benefits of Demand Response in Electricity Markets and Recommendations for Achieving Them: Report to U.S. Congress Pursuant to section 1252 of the Energy Policy Act of 2005*, U.S. Department of Energy (2006).

[45] *See also* Viridity Post-Technical Conference Comments at 11, n. 12.

[46] Comverge Post-Technical Conference Comments at 5, *citing* Summary of PJM-initiated Load Management Events, http://www.pjm.com/~/media/planning/res-adeq/load-forecast/alm-history.ashx.

EnerNOC provides that PJM has previously admitted to this fact.[47] EnerNOC argues that if DR performance above a customer's PLC is not allowed to count, as proposed by PJM, then the GLD baseline measure will yield performance no higher than the FSL baseline. ECS contends that PJM's proposal will, in turn, reduce the resources that can participate in PJM's DR program. ECS and Steel Producers also assert that PJM's proposal will effectively eliminate the ability of a CSP to aggregate the performance of a customer beyond its PLC against the under-performance of other customers.

47. EnerNOC also believes that PJM incorrectly assumes that customers who participate in the PJM Emergency Load Response Program have committed to reduce their load below PLC during emergencies because the obligations of Capacity DR resources under the PJM tariff run to the CSP that committed the resource, not the end-use customer. In addition, Comverge argues that DR customers consuming electricity in quantities greater than their PLCs, who purchase capacity in excess of their PLC directly from a supplier or LSE, should have equal rights to sell any or all of the capacity they purchase back to the market.

c. Rebuttals

48. PJM disagrees that its proposal will allow Capacity DR to provide nothing if it is already shut down when PJM's dispatch order for Capacity DR is issued. PJM states that capacity performance means fulfilling capacity commitments. PJM states that, like DR, when generation is already running at its rated capacity, it can meet its capacity obligations by continuing to perform at that level. PJM further explains that any output above the capacity commitment is compensated solely through the energy market.[48]

49. PJM asserts that because capacity and energy are separate products, with distinct markets and prices, the measurement and verification for these products must also be separate and distinct.[49] PJM further asserts that the capacity it procures in RPM is not a real-time product. PJM argues that, as such, the capacity product at issue in this case is and must be defined in relation to the amount of capacity committed by resources and procured by PJM, not relative to highly variable, real-time energy consumption levels. PJM notes that once the capacity value of a resource is established for a delivery year, it remains static, regardless of what happens in future, real-time operations.[50]

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[47] EnerNOC Answer to Post-Technical Conference Comment at 3, *citing* EnerNOC, Inc., Docket No. EL11-23-000, Motion to Intervene and Comments of PJM Interconnection, LLC dated March 2, 2011, at 18.

[48] *See also* IMM Post-Technical Conference Comments at 4; Constellation Post-Technical Conference Comments at 8, *citing* Tr. Bowring at 173.

[49] *See also* IMM Post-Technical Conference Comments at 2; P3 Post-Technical Conference Comments at 3; Viridity Post-Technical Conference Comments at 3.

50. PJM asserts that EnerNOC's arguments go beyond the scope of this proceeding in arguing that full LMP compensation for reductions in energy consumption are insufficient and that the same reduction should receive compensation in the capacity market. PJM argues that EnerNOC's arguments also exceed the scope of this proceeding by inviting the Commission to transform capacity from a forward commitment to a real-time product.

51. PJM also responds to intervenors' argument that PJM's proposed tariff clarifications will eviscerate the GLD approach, undermine DR aggregation, and harm the development of Annual DR resources in PJM. PJM argues that its proposal simply requires customers using GLD to conform to the same capacity market performance standards as other resources. With respect to aggregation, PJM states that over-performance by one resource can be used to offset under-performance by another only when the over-response is measured against the appropriate baseline. With regard to the Annual DR product, PJM states that resources with seasonal variability could be submitted as part of a composite bid that represents the amount of capacity that can be collectively delivered throughout the year. PJM states that its system has always been, and remains, a summer peaking system. PJM states, as such, the capacity performance of Annual DR, like that of its predecessor products, is properly measured relative to the demand resource's contribution to PJM's system reliability requirement, which cannot exceed PLC.

52. PJM asserts that ISO-NE's performance metrics are not probative for evaluating PJM's proposal. PJM argues that ISO-NE has made its own choice to use the same criteria for evaluating energy and capacity performance and has presumably integrated that choice into its market design and resource adequacy process. PJM argues that it would need to procure significantly more capacity at a greater cost to load if it were required to adopt the ISO-NE methodology.

3. Whether the Use of a PLC Benchmark to Measure and Verify Compliance with DR Capacity should be Modified

a. PJM's Position

53. PJM proposes to apply the PLC to the measurement and verification of Capacity DR resources in the delivery year. PJM's filing also proposes a interim provision, for delivery year 2011-12, for which Capacity DR resources' performance would be measured by load reductions relative to each registered customer's PLC multiplied by a factor or 1.25. PJM stated that this interim provision recognizes the acknowledged ambiguity of PJM's existing rules and provides a reduced compliance burden to CSPs in the initial year of implementation of the new rules.

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[50] *See also* AEP Post-Technical Conference Comments at 5.

b. Intervenor Comments

54. Intervenors propose that PJM be required to reconsider and/or revise its existing PLC baseline.[51] Comverge proposes that a stakeholder process be initiated to develop a more accurate method of determining peak energy usage. The IMM requests that, among other possible revisions to PJM's existing PLC methodology, consideration be given to use of the "Obligation Peak Load," as established under Schedule 8 of the PJM Reliability Assurance Agreement, to determine the amount of capacity procured through RPM for each zone that is assigned to each LSE.

55. AMP argues that PJM's proposed tariff clarifications fail to recognize that load may legitimately experience growth between the time of commitment and the time of an emergency event. AMP recommends that, in order to take legitimate load growth into account, GLD registrations be limited to the PLC, with load reductions compared to the PLC, but not require that the customer's compliance be measured from the PLC amount, i.e., that customers not be required to reduce their consumption below the PLC to receive capacity credit.[52]

56. Comverge argues that, if PJM's filing is accepted, PJM should be required to offer exceptions for customers whose load fluctuates for reasons unrelated to peak shaving. Comverge further argues that PJM's revisions should be mitigated by substituting a customer's unforced capacity obligation for the PLC as a baseline, or by making permanent PJM's proposed 1.25 times PLC interim baseline.[53] Viridity requests that the baseline for measuring capacity performance be set at 1.25 times the customer's PLC during the 2012-13 delivery year, while Constellation would not oppose a transition rule for only the 2011-12 delivery year.

57. Viridity suggests that, if the PLC is not used as a baseline, the calculation of the PLC or the reliability requirement should be adjusted to better align with the data in the calculations. Viridity asserts that variations from the PLC are appropriate for measuring a customer's performance in the following circumstances: when customers can demonstrate actual changes in load during system peak, during severe weather conditions, when PJM calls an emergency event outside the peak season, and for customers who do not manage

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[51] *See* Comverge Post-Technical Conference Comments at 11-12; IMM Post-Technical Conference Comments at 5-6; Maryland Public Service Commission Post-Technical Conference Comments at 6; Viridity Post-Technical Conference Comments at 19.

[52] *See* AMP Post-Technical Conference Comments at 3, *citing* Tr. Weishaar 110:7–112:8; *see also* New Jersey Board Post-Technical Conference Comments at 6; Hess Post-Technical Conference Comments at 4-6.

[53] *See* PJM Filing at 15.

their peaks consistently and whose operational peaks will vary year-by-year and even within a year.

58. The IMM argues that the various proposals to create exceptions to PJM's proposal are unripe for Commission consideration, do not relate to the level of capacity which customers are obligated to purchase, and inappropriately reassign performance risks that are the responsibility of the customers or their CSPs. The IMM disagrees with any customer specific adjustments to the PLC benchmark, such as an adjustment to accommodate load growth. The IMM and AEP argues that, when a customer's obligation to purchase capacity is unchanged in the delivery year, then other changes are irrelevant to the basic capacity market transaction. AEP notes, however, that the CSP could receive energy payments for reducing the additional load.

4. Alternative Proposals

a. Whether PJM's Existing PLC Cap on DR Nominations Warrants Revision

59. EnerNOC urges the Commission to take FPA section 206 action in this proceeding, to revise PJM's current PLC cap on Capacity DR nominations made into RPM auctions. EnerNOC argues that the PLC cap denies individual customers the ability to receive compensation for the full capability of their DR resource. EnerNOC argues that a contemporaneous baseline methodology (an EnerNOC proposal discussed below, regarding DR performance) would facilitate aggregation of real, verifiable performance that balances supply and demand. EnerNOC asserts that because all customers should have access to the best and most accurate baseline metric, the PLC cap on nominations must be rejected as unjust and unreasonable. EnerNOC adds that the growing use of DR aggregation, as well as changes in the PJM planning process and Commission policy regarding the purpose and function of DR, support the conclusion that the PLC cap is discriminatory, unjust and unreasonable.

60. PJM responds that the issue presented by its filing concerns the measurement and verification of DR load reductions, not PJM's existing RPM auction bidding rules limiting bids to PLC. PJM argues, that regardless, PLC is a valid basis for measuring the capability of individual end-use facilities to provide DR capacity. PJM notes that PLC is not merely a cost allocator, but a reflection of each load's contribution to the load forecast on which capacity procurement is based.

b. Whether CBL Should be Redefined to Address Capacity Performance Above the PLC

61. EnerNOC argues that PJM's concern regarding capacity performance above an end-user's PLC, could be addressed by a tighter, more contemporaneous, definition of CBL. Specifically, EnerNOC asserts that, even assuming that CBL does not currently recognize a

voluntary load drop, or peak shaving, revisions to the CBL should be made to give the best possible measure of what consumption would have been but-for some program.

III. Discussion

A. Procedural Matters

62. Motions to intervene were filed on July 1, 2011, by the Maryland Public Service Commission, and on August 15, 2011, by Steel Producers, ECS, and the District of Columbia Commission.

63. We grant the unopposed, late-filed motions to intervene submitted by the Maryland Public Service Commission, Steel Producers, ECS and the District of Columbia Commission, given their interests in the issues presented, the early stage of this proceeding, and the absence of any prejudice to any other party.

B. Commission Determination

64. Upon further review of the record, as supplemented, we accept PJM's filing, effective November 7, 2011, subject to conditions. We find that, given the way in which PJM structures its capacity market, PJM's proposed tariff filing is just and reasonable. Specifically, PJM's proposal is consistent with the purpose of capacity procurement in PJM, which is to procure capacity resources to meet forecasted system demand during peak periods plus reserves.[54] The PLC provides PJM with an estimate of peak period performance in future delivery years based on a customer's historic peak demand and is the specified limit under the tariff to the amount of capacity that an individual resource can commit in a capacity auction. By requiring that GLD Capacity DR load reductions in the delivery year be referenced to a baseline that is the lesser of a customer's PLC, or comparison load, PJM has ensured that resources will respond to peak period emergencies in a manner consistent with the RPM procurement process. For all these reasons, we find that PJM's filing comports with PJM's capacity resource procurement for reliability. Thus, we find that a PLC baseline metric provides a just and reasonable methodology for measuring demand response performance within the structure of PJM's capacity market.

65. PJM uses its RPM capacity market to procure resources to meet its system reliability requirement and ensure that the PJM region has an acceptable level of capacity resources for reliability, as established by the Reliability Principles and Standards.[55] Given the structure of PJM's RPM market, we agree that the rules applicable to the performance of Capacity

[54] PJM OATT, Attachment DD at section 5.4 (Reliability Pricing Model Auctions) and section 5.10 (Auction Clearing Requirements).

[55] PJM OATT, Attachment DD at section 5.10 (Auction Clearing Requirements). The Reliability Principles and Standards are established by the North American Electric

DR resources must be consistent with the rules governing procurement of Capacity DR commitments in RPM auctions. In PJM, Capacity DR commitments are based on the capability of Capacity DR resources to meet PJM's system reliability requirements, as currently measured by the PLC. PJM states that the most accurate, available measure of an end user's contribution to the system peak load is its PLC and thus is the best available proxy for the amount of capacity that PJM procures for the customer's use on the peak day of the year.[56] Further, prior to the first day of the delivery year, PJM analyzes end-use customer-specific data, including PLC values, to verify the amount of load management that will be available in the delivery year for reliability and to set a maximum allowable Capacity DR value for resources.[57] PJM's proposal to measure the performance of resources on the same basis as procurement supports this necessary consistency.

66. Contrary to statements made by opposing parties, we agree with PJM that PLC and its inputs are linked to the forecasts that are used by PJM in procuring capacity. As discussed earlier,[58] the RTO peak load forecast is based on load during the coincident peak

day, which is also one of the five days that serve as the foundation for customer PLCs.[59] Also, to determine its capacity needs for a given delivery year, PJM adjusts its load

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Reliability Corporation (NERC), or an Applicable Regional Reliability Council, to define, among other things, an acceptable probability of loss of load due to inadequate generation or transmission capability. *See* Reliability Assurance Agreement, Article 1 at section 1.75 (Reliability Principles and Standards).

[56] The PLC is based on a customer's historic demand during peak load. This historic demand contributes to zonal load forecasts. Thus, the PLC can serve as an estimate of the customer's demand that was used in the load forecast. Although we recognize that PJM does not use the PLC to set its procurement objectives in RPM, historical PLCs are PJM's best estimate for measuring an end-use customer's contribution to the system peak load, as mentioned above, and thus are appropriate for providing an estimate and description of the basis for PJM's procurement objectives.

[57] PJM OATT, Attachment DD-1 at section K. *See also* Reliability Assurance Agreement (Procedures for Demand Response Resources, ILR, and Energy Efficiency), Schedule 6 at section K.

[58] *See supra* at P 6.

[59] PJM Manual 19 at 11. To obtain the RTO peak forecast, the solution for each of the zonal coincident peak models are summed by day and weather scenario to obtain the RTO peak for the day. For the RTO, a distribution of the seasonal RTO peak versus weather scenario is developed. From this distribution, the median result is used as the base

forecasts through the third incremental auction, which is also when the PLCs are finalized for that delivery year.[60] The PLC also acts as a limit to the amount of Capacity DR that is added back to unrestricted peak load that is used in the RTO peak load forecast.[61]

67. Given the structure of PJM's current RPM mechanism and load forecasting methodology, we find that the reliability concerns giving rise to PJM's filing have been sufficiently supported by PJM. For example, if PJM were not able to base compliance on the PLC, end-use customers that are providing Capacity DR would not be required to perform in the delivery year in a manner consistent with PJM's capacity objectives in the RPM auctions. When resources do not drop below their historical PLC, there is more load on the PJM system than was anticipated when capacity resources were procured in the capacity auctions. Additional capacity resources could well be required to meet this load, thus leaving less capacity available to meet other customers' loads. In this respect, the system reserve margin potentially could be eroded, thus putting PJM at risk of violating reliability criteria, potentially necessitating increased capacity procurement at associated costs. [62]

68. In addition, we agree with PJM that customers have a financial incentive to reduce their load during potential peak periods because such a reduction potentially reduces the customer's peak load, or PLC, and hence its capacity payment. Therefore, it is reasonable for PJM to expect such performance during emergency events and measure performance against the amount of load that PJM expects on peak days.

69. Under PJM's current tariff, the measure for a commitment made by a Capacity DR customer that is not part of an aggregation is limited to the amount that a customer can offer as capacity, its PLC. Similarly, the cumulative commitment of an aggregation is limited to the sum of the member's cumulative PLCs. In its comments, PJM explains how it envisions a possible aggregation under the current tariff that uses reductions above the PLC load level.[63]

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forecast.

[60] *See* PJM Post-Technical Conference Comments at 15.

[61] *See supra* at note 33.

[62] July 11, 2011 Response of PJM to Notice of Topics for Staff Technical Conference at 10.

[63] PJM states:

> Because the current rules already limit a single site's nomination to its PLC, it cannot, by itself, nominate its entire PLC and then claim it is entitled to capacity compensation for load reductions in excess of the PLC. But if a CSP combines this customer's

However, PJM's proposed tariff revisions seemingly alter current customer aggregation mechanisms by changing the dynamics of individual customer load reductions. Under PJM's proposal, load reductions will only be recognized as Capacity DR if the metered load is less than the PLC. While PJM provides an example in its initial filing to demonstrate that its proposal still permits aggregation,[64] PJM does not fully explain how its proposal here will be implemented in an aggregation or how penalties will be applied to under-compliance for aggregated customers.[65] However, portfolios and aggregation enable CSPs and the PJM system to realize benefits of diversity among customers. Given that PJM has not fully explained how such beneficial effects of aggregation will be achieved going forward under its proposal, we require PJM to make a compliance filing within 60 days of the date of this order that explains how aggregation will be implemented, and how penalties will be assessed for the under-compliance of aggregated customers, under its proposal.

70. EnerNOC recognizes that, if PJM's proposal is rejected (and EnerNOC's approach to measuring GLD performance were adopted), additional changes (not before the Commission in this proceeding) would be required to PJM's tariff, such as changes to PJM's add-back provisions.[66] While PJM is encouraged to undertake a review with its stakeholders of various aspects of its measurement and verification for Capacity DR, as discussed further below, we find this issue outside the scope of the current filing. In this context, we find that based on PJM's current capacity market construct and its requirements for determining its capacity needs, PJM's proposal provides a reasonable method for assuring that it meets its reliability targets.

71. Some of the protesters contend that there is no reliability issue because the forecast PJM uses takes into account customer diversity, load growth, changes in usage due to weather and other factors. While reliability estimates employ a variety of adjustments, we

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> effort with other sites which it does not expect to perform, suddenly it can claim credit for reductions that far exceed the performing location's PLC. This creates an incentive for a CSP to register sites that are unlikely to perform.

PJM Post-Technical Conference Comments at 19.

[64] PJM Filing at 13.

[65] *See* PJM OATT, Attachment DD at section 11 (Demand Resource and ILR Compliance Penalty Charge).

[66] EnerNOC Post-Technical Conference Comments at 34-35 ("if the Commission maintains the GLD option as a correct measure of demand response performance, then PJM should be compelled to adopt an add back regime that accurately reflects that performance, and only that performance, in the historic loads that are used as inputs to the forecast"). *See also* EnerNOC Response to PJM's Post-Technical Conference Comments at 2.

are not persuaded that the reliability concern is mitigated by such adjustments. In addition, while PJM's reserve margin accommodates for unforeseen unavailability of resources and unanticipated consumption in excess of forecast loads, the reliability concerns that PJM's filing addresses are not caused by such unforeseen circumstances. Rather, PJM's filing adequately addresses load deviations that are inconsistent with the methods used by PJM to determine the amount of capacity that it seeks to procure in the auctions.

72. Contrary to intervenor arguments, PJM's proposed changes to the GLD option provide an incentive for Capacity DR performance during emergency scenarios, regardless of whether they occur on-peak or off-peak. Under PJM's proposal, GLD resources will be required to reduce consumption during an emergency because the filing establishes performance relative to the lesser of PLC minus metered load or the comparison load minus metered load. If a GLD resource has been shut down and is already below PLC before a Capacity DR event is called, then the comparison load minus the metered load will be used to measure the actual load reduction and the resource will not meet its compliance obligations for that event. For instance, if a GLD Capacity DR resource with a 5 MW PLC and 5 MW capacity commitment has been shut down (performing at a metered load of (0 MW) throughout the summer and is notified that it must reduce consumption during an emergency, then the difference between the comparison load (0 MW) and metered load (0 MW) will be less than the difference between the PLC (5 MW) and the metered load (0 MW).[67] In this circumstance, PJM's tariff provisions would require it to assess the load drop based on the comparison load baseline and the customer would be penalized for not meeting its compliance requirements. A similar circumstance would occur if an emergency was called in the winter and an Annual DR resource was previously shut down.

73. We also reject intervenors' argument that PJM's proposal will eliminate the GLD option and DR aggregation. PJM's tariff, as revised in this proceeding, leaves in place the GLD option.[68] While GLD Capacity DR resources will be required to drop below PLC during an emergency, compliance objectives under the GLD option can still be met by load management achieved by a customer reducing its load by a pre-determined amount, as provided in the tariff. In addition, DR aggregation is still available in an amount up to the customer's PLC. It is our understanding that resources that reduce a greater quantity of load than their GLD commitment, and that have not been committed up to their entire PLC, can continue to be used to offset other resources in a portfolio that underperform.[69] However, as

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[67] We find that intervenor arguments regarding the accuracy of PJM's comparison load methodologies are outside the scope of this proceeding, given that PJM is not proposing to revise the use of comparison loads to assess compliance. *See* PJM OATT, Attachment DD-1 at section L.

[68] *See, e.g.,* PJM OATT, Attachment DD-1 at section H.

[69] PJM's Emergency Load Response Program tariff provisions provide that capacity compliance will be based on each individual customer's load reductions and then

determined previously, we direct PJM on compliance to explain how such beneficial effects of aggregation will be achieved going forward under its proposal.

74. We also reject intervenors' arguments that PJM's filing violates policies articulated by the Commission in Order No. 719 and Order No. 745. PJM's capacity market treats DR, generation, and energy efficiency as supply resources. Like generation, Capacity DR resources receive a full capacity payment in the delivery year for capacity performance, with no revision accepted here altering or otherwise limiting this right. Moreover, PJM's filing draws a necessary link between capacity resource performance and procurement to ensure system reliability. In this respect, we disagree with ECS that PJM's tariff clarifications create unreasonable barriers for DR, impede comparability, or will otherwise hinder the role of DR during the occurrence of an operating reserve shortage. Indeed, many DR providers support PJM's proposal.

75. EnerNOC asserts that PLC is not the most accurate predictor of customer usage during peak periods. While there may be other methods of designing a capacity market and measuring Capacity DR performance, PJM's proposal before us here fits within the market design it uses for its capacity market. PJM uses PLC to define the amount of capacity a resource may offer. The PLC value is also based on peak usage during the most recent delivery year. In view of the fact that PJM's current tariff requires that customer-specific data be submitted before the first day of the delivery year,[70] the PLC benchmark provides a relevant basis for measuring peaks in the current delivery year. Accordingly, we find this to be a reasonable performance metric for Capacity DR.

76. Comverge argues that customers consuming electricity in quantities greater than their PLCs purchase capacity in excess of their PLC directly from a supplier or LSE, rather than through the RPM auction. According to Comverge, these DR customers should have equal rights to sell any or all of the capacity they purchase back to the market. We disagree. As provided above, capacity market performance requirements in PJM should be consistent with the rules for making DR commitments in the RPM auction. LSEs and CSPs that are acting as DR suppliers can only nominate and commit up to an end-use customer's PLC. They are not able to nominate additional quantities that the end-use customer may have purchased (or will purchase in the future) from a supplier or an LSE.

77. EnerNOC argues that PJM incorrectly assumes that customers who participate in the PJM Emergency Load Response Program have committed to reduce their load below PLC during emergencies because the obligations of Capacity DR resources under the PJM tariff run to the CSP that committed the resource, not the end-use customer. PJM's tariff provides the ability for customers to make direct commitments to PJM or to use CSPs. However, in

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aggregated. PJM OATT, Attachment K-Appendix, PJM Emergency Load Response Program, Emergency Load Response Participant Aggregation at section (iv).

[70] PJM OATT, Attachment DD-1 at section K.

both cases, PJM's current tariff provides, and PJM's proposal does not seek to change the fact, that capacity compliance is based on each individual customer's load reduction.[71] In this proceeding, PJM's proposal only acts to apply capacity nomination rules to capacity performance, which, as stated above, we find to be just and reasonable.

78. In this proceeding, PJM has clarified that its proposal does not affect energy market compensation for CSPs and resources, but rather is focused on the compliance verification rules for Capacity DR resources. In its Post-Technical Conference Comments, PJM provides an example showing that under its proposal a Capacity DR resource would only be compensated in the capacity market up to its PLC, but would receive payments[72] in the energy market for its full reduction, even if that full reduction is above the PLC.[73] However, we find that PJM's proposed tariff provisions are unclear on the mechanism by which Capacity DR resources will receive these payments. Although PJM's proposed tariff language describes the energy market settlements for load reductions, it also subjects payments for these load reductions to the reporting and compliance provisions that require Capacity DR resources to reduce below their PLC.[74] While load reductions must reduce below the PLC to be attributed with capacity compliance under PJM's filing, the proposed tariff revisions are unclear as to whether load reductions made by capacity resources will receive energy market compensation for curtailments that occur above the PLC. Accordingly, we accept the filing subject to the condition that PJM submit revised tariff language in a compliance filing, within 60 days of the date of this order, clarifying how Capacity DR resources will receive energy market payments for reductions above the PLC.

79. We also require that PJM clarify its description of the comparison load baseline metric. For GLD customers, PJM proposes that compliance be based on the lesser of: (a) comparison load used to best represent what the load would have been if PJM did not declare a Load Management event or the CSP did not initiate a test as outlined in the PJM

[71] *Id.* at section L; *see also* PJM OATT, Attachment K-Appendix, PJM Emergency Load Response Program, Emergency Load Response Participant Aggregation at section (iv).

[72] The PJM OATT and PJM Operating Agreement apparently differ in the amount of compensation provided to resources enrolled in PJM's Emergency Load Response Program. The PJM OATT provides that payment will be equal to the measured reduction times the applicable LMP. *See* PJM OATT, Attachment K-Appendix, PJM Emergency Load Response Program, Market Settlements. However, the PJM Operating Agreement provides that payments will be equal to the measured reduction times the applicable LMP otherwise in use for settlement of the given load or $500/MWh. *See* Operating Agreement, PJM Emergency Load Response Program, Market Settlements.

[73] PJM Post-Technical Conference Comments at 10.

[74] *See, e.g.,* PJM OATT, Attachment K-Appendix, PJM Emergency Load Response Program, Market Settlements.

Manuals, minus the metered load; or (b) the current delivery year PLC minus the metered load.[75] However, for a comparison load assessment, PJM does not define how it or a DR supplier would qualify the "best" representation of what load would have been, had the resource not been instructed to reduce consumption; several options currently exist for estimating comparison loads for GLD customer event compliance.[76] To provide greater clarity during compliance assessment, we will accept PJM's filing on the condition that PJM file tariff revisions within 60 days of the date of this order to include in its description of a comparison load[77] a list of the options available for estimating comparison loads and a reference to the manual in which those options are described.

80. Further, PJM has provided tariff revisions to clarify the compliance requirements for the FSL and GLD measurement and verification options in the PJM OATT, Reliability Assurance Agreement, and Operating Agreement. However, in Attachment DD-1 of the PJM OATT and Schedule 6 of the Reliability Assurance Agreement, PJM has only revised the compliance provisions applicable to the GLD option, not the FSL option. Compliance provisions for the FSL option are only provided by PJM in the PJM OATT at Attachment K-Appendix and the Operating Agreement. For consistency, we accept the filing on the condition that PJM file tariff revisions within 60 days of the date of this order to provide the compliance requirements for the FSL option in Attachment DD-1 of the PJM OATT and Schedule 6 of the Reliability Assurance Agreement.

81. While we accept PJM's proposed PLC baseline metric as just and reasonable, we find that this filing is not just and reasonable unless PJM incorporates an interim mechanism that accounts for commitments previously made by CSPs.[78] Because PJM utilizes an auction three years in advance, CSPs may have made some commitments based on an assumption that they could count reductions from actual load levels above the PLC as part of their performance. While PJM proposed a 1.25 multiplier on the PLC as an interim mechanism to apply only through the 2011-12 delivery year, we find PJM has not demonstrated that this interim mechanism is just and reasonable. Given the evidence supplied in the proceeding, it appears that the 1.25 multiplier may not provide sufficient protection for those who may

[75] *See, e.g.,* PJM OATT, Attachment DD-1 at section L.

[76] The options currently available for estimating comparison loads are: comparable day, same day, CBL, regression analysis, and generation output. PJM Manual 19, Attachment A at 24.

[77] Namely, that the comparison load is used to best represent what the load would have been if PJM did not declare a Load Management event or the CSP did not initiate a test as outline in the PJM Manuals.

[78] Other parties submitted alternative proposals for interim measures that PJM may wish to consider. *See, e.g.,* Industrial Customers' interim mechanism proposal, at. Tr. Weishaar 110:7–112:8. *See also* Weishaar Test. at 4.

have previously committed resources. Not only does the 1.25 proposal expire earlier than the prior capacity commitments, PJM has not shown that it will fully protect CSPs that have made such commitments, as some CSPs may have projected curtailment capabilities for certain customers in an amount greater than 1.25 times the PLC. We therefore will accept PJM's filing, conditioned on PJM submitting an interim mitigation measure that applies more broadly from the 2012-13 delivery year through the 2014-15 delivery year, which is coincident with the last delivery year for which a base residual capacity auction has been held. In its compliance filing, PJM may propose one of the approaches discussed at the technical conference or propose a different approach that protects the reasonable reliance expectations of DR suppliers through the 2014-2015 delivery year.

82. Other parties submitted alternative proposals that were not interim in nature. This section 205 filing focuses on PJM's proposal, and, as discussed, we find that PJM's proposal as conditioned above is just and reasonable. As part of its ongoing process, PJM and its stakeholders may consider any of these proposals to the extent that they provide more accurate event compliance metrics for Capacity DR resources. We also deny requests for further postponement of the effective date of PJM's filing. Under section 205, the maximum suspension period the Commission can impose is the five month suspension previously ordered. Moreover, as discussed above, PJM's tariff revisions are appropriate for its current capacity procurement mechanism and help to meet a reasonable reliability need. As noted above, we are also requiring an interim mechanism to help mitigate any burdens placed on DR suppliers by PJM's filing.

C. Additional Deliberations

83. PJM, in comments submitted in Docket No. EL11-23-000, stated that it would be willing to address issues of material substance in this proceeding with stakeholders. Based on the record made during the technical conference, additional stakeholder consideration may be necessary with respect to several issues regarding PJM's capacity DR program and we encourage PJM to initiate stakeholder deliberations on such issues. Accordingly, we will require PJM to submit an informational filing within one year of the date of this order to inform the Commission on the status of these stakeholder deliberations.

84. First, we believe that an examination of the PLC would be beneficial. Based on our review of the record, in this proceeding, we recommend that PJM analyze and discuss with stakeholders whether a more accurate compliance metric or adjustment to the PLC can be established for estimating a resource's contribution to the reliability requirement and the amount of capacity which a customer is obligated to purchase, as suggested in part by Comverge, the IMM, Viridity, and the Maryland Public Service Commission.

85. We also agree with the Intervenors that argue that PJM needs to consider revisions to its tariff based on its recent addition of the Extended Summer[79] and Annual DR products.[80]

[79] Extended Summer DR is available from May through October for at least a

As the Intervenors point out, these products are not entirely based on the peak load projections that PJM currently uses in the capacity auctions. As PJM explained in its December 2, 2010 Filing in Docket No. ER11-2288-000, spring and fall outage seasons and unseasonably warm weather during these periods may require the initiation of emergency procedures during these periods.[81] Indeed, during the technical conference, PJM acknowledged the need to consider performance reference alternatives for Annual DR products.[82] PJM therefore is encouraged to give consideration to how to appropriately measure performance of capacity for resources that are procured specifically to perform outside of PJM's June through September summer period.

86. In addition, we acknowledge AMP's concern that the PLC fails to recognize that load may legitimately experience growth between the time of commitment and the time of an emergency event. PJM's load forecasts incorporate economic load growth expectations,[83] thus allowing for increased procurement objectives and potentially higher capacity costs for customers on the basis of load growth. However, under PJM's proposal, Capacity DR measurement and verification based on a PLC baseline would not project a similar adjustment for load growth consistent with forecasted expectations. Thus, as part of any review, PJM is encouraged to evaluate potential means of adjusting PLC to accommodate for load growth. Any similar inconsistencies between the PLC baseline and PJM's load forecasting methodologies also could be considered by PJM in an examination of the PLC with stakeholders.

87. Further, with the advent of new metering technology and communications between PJM and DR providers, Capacity DR products and performance baselines could potentially become more dynamic with actual resources' load levels.[84] With enhanced metering and

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10-hour duration during an unlimited number of interruptions. *See* Reliability Assurance Agreement at section 1.20C.

[80] *See supra* at note 29.

[81] *See* PJM Interconnection, L.L.C., Affidavit of Michael E. Bryson, Docket No. ER11-2288-000 (December 2, 2010).

[82] Tr. Ott at 187: 9-18, 217: 7-25, 218: 1-12.

[83] *See* PJM Manual 19 at section 3 (PJM Load Forecast Model).

[84] PJM appears to be also considering the need for new metering and communications technology. In PJM's June 18, 2010 Shortage Pricing Filing under Docket No. ER09-1063-004, PJM stated that given the increased quantity of Capacity DR operating in PJM, real-time operational data is needed for PJM. PJM stated that data elements will be required at least daily during the summer months from June through September, hourly during emergency conditions, and monthly at all other times. *See also* PJM's

communications, Capacity DR curtailments may be distinguished from peak load management, thus ensuring that the amounts of capacity PJM procures through RPM will continue to be adequate to maintain reliability in the PJM region.[85] Accordingly, PJM is encouraged to analyze with stakeholders the extent to which advancements in metering may assist in resolving reliability concerns that are at issue here, and allow for a more dynamic baseline metric in the future.

88. Accordingly, we require PJM to submit an informational filing within one year of the date of this order to inform the Commission on the status of any discussions with stakeholders regarding: (i) the accuracy of the PLC in estimating a resource's contribution to the reliability requirement; (ii) applicability of the PLC performance metric for resources with higher performance outside of the summer period; (iii) whether the PLC can be adjusted to account for load growth and other trends included in the PJM load forecasts that

are used in RPM; and (iv) how advanced metering and communications could foster the reliability of the PJM Capacity DR product.[86]

The Commission orders:

(A) We hereby accept PJM proposed tariff revisions, effective November 7, 2011, subject to conditions and to the submission of a compliance filing regarding these conditions within 60 days of the date of this order, as discussed in the body of this order.

(B) PJM is required to submit an informational filing within one year of the date of this order, as discussed in the body of this order.

By the Commission. Commissioner Spitzer is not participating.
Chairman Wellinghoff is concurring with a separate statement attached.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

September 23, 2011 Price Responsive Demand Filing under Docket No. ER11-4628-000.

[85] Tr. Bowring at 139: 2-9.

[86] We note that this report is for informational purposes only and will neither be noticed, nor require Commission action.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C. Docket No. ER11-3322-000

(Issued November 4, 2011)

WELLINGHOFF, Chairman, *concurring*:

Today the Commissions accepts, with conditions, PJM's proposal to clarify the measurement of the performance of demand response resources in meeting their commitments in PJM's capacity market.

I write separately today to highlight the additional deliberations we encourage PJM and its stakeholders to undertake in the coming year to, among other things, examine ways to improve measurement of the performance of demand resources in meeting system reliability requirements.

I agree that under PJM's current capacity market structure, consumption at levels greater than the amount of capacity procured can potentially lead to reliability concerns. However, I observe that this is a general concern, and does not arise solely due to customers who are willing to offer demand resources into the capacity markets. Consumption varies for many reasons: weather and comfort levels; time of day, season or year; occupancy, operations and equipment constraints; and codes and standards. There are perils to assuming that peak consumption is static, as if it is similar to a nameplate rating for a conventional generating plant, which the proposal we accept today is not designed to address. I encourage PJM and its stakeholders to take the next step.

PJM has a variety of different initiatives underway to obtain better visibility of its system, including of customers' demand and demand resources, and to use this data to run the system more cost-effectively and reliably. I encourage PJM to use this opportunity to take a comprehensive view of its many initiatives and work with stakeholders to more accurately forecast and measure the performance of capacity demand resources in maintaining the reliability of the system in a dynamic environment.

I also agree that aggregation of demand resources takes advantage of the diversity of consumption among customers in ways beneficial to the entire PJM system. This order does not preclude market participants from achieving such benefits, rather it seeks to have these beneficial effects continue. I fully recognize that these issues can be divisive, reflecting the diverse competitive business interests of market participants. Nevertheless, I urge PJM and its stakeholders to carefully analyze the reliability benefits that demand resources and aggregations of demand resources provide to the system and how to more accurately reflect this in the RPM.

For this reason, I concur with today's order.

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Jon Wellinghoff
Chairman